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of the

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INTRODUCTION

THE twenty-second Conference of Aslib was held at the London School of Economics and Political Science, Aldwych, London, during the week-end 20–1 September 1947. It was preceded on the Friday evening, 19 September, by the twenty-second Annual General Meeting, held at Canterbury Hall, Cartwright Gardens, London.

Catering and other domestic difficulties still made it impossible to find a conference centre willing to provide completely residential accommodation for the large numbers which can now be expected to attend an Aslib conference. However, thanks in large measure to the introductions given by Mr. Geoffrey Woledge, Aslib was most fortunate in being able to make an arrangement by which the morning and afternoon sessions, together with lunch, could be held at the London School of Economics and Political Science while, from tea onwards, the delegates could migrate to the lounges, dining-hall, and other amenities of Canterbury Hall. This made it possible to arrange a small exhibition of recent books and periodicals on documentation and a demonstration of mechanically and manually operated punched-card systems of record-keeping. Both displays were very popular and are described at greater length on pages 93 and 55 respectively.

The papers which follow constitute a record of the proceedings of the Conference. Written papers prepared in advance by the speakers have been reprinted in full. All those taking part in the discussions were asked to send in notes of their contributions and, with very few exceptions, these have been incorporated.

The contents of this Report have, this year, been rearranged in a more logical order, and the account of the year's work of Aslib has been placed towards the end together with other material pertaining to the Annual General Meeting rather than to the Conference itself. Reports are included on the 1947 Conference of the International Federation for Documentation (F.I.D.), the work of the British Union Catalogue of Periodicals, and the National Central Library (pages 120, 128, and 130). For these we are indebted to the courtesy of Mr. J. F. Stanley, Dr. Alfred Loewenberg, and Mr. R. H. Hill respectively.

A brief index to the contents of this Report is printed at the end. Copies of the Reports of Proceedings of nineteen previous conferences are still available, but those of the second and tenth conferences are out of print. A cumulative index to the Proceedings, Volumes I–XX, has been published and is available, forming a key to the varied wealth of material accumulated within these records of Aslib's interests and activities. These Reports are indexed in the *Industrial Arts Index* of the H. W. Wilson Company of New York.

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THE EFFECT OF ATOMIC ENERGY DEVELOPMENTS ON SCIENTIFIC AND TECHNICAL PUBLICATIONS

By PROFESSOR R. E. PEIERLS, C.B.E., F.R.S., M.A., D.Sc., D.Phil.

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I SHALL not spend any time to-day in stressing the importance of free interchange of knowledge between scientists both by word of mouth and in print. My reason is not that I have no strong feelings in the matter, but that I feel sure that my feelings are shared by everyone present in this gathering. I am sure you would not be here if you did not appreciate fully the vital part played by scientific communications.

Recent developments have caused an enormous increase in the importance placed on science by the general public and by governments. This is a help to science because it brings more support in the way of means and facilities; the price we pay for this is increased legislation limiting the freedom of scientists. Scientists, like other people, resent interference with the way in which they work, but that is not the point. Scientific progress has been accelerated in our generation largely because a thought expressed by someone, say, in Cambridge may at once lead to comments by a scientist in Copenhagen which show the right use for a machine available in Princeton. Restrictions on the international communications between scientists are restrictions on the progress of science in any country.

But we can go farther: even if a country has progressed far enough in a subject to be able to ignore the contributions made anywhere else (and that is not true to-day of any country I know in any subject I know of), limits on publication would still hold up progress there, since the only efficient way of keeping people within that country informed, is to rely on free publication and open discussion. Circulation of secret papers is a poor substitute for scientific journals, committee meetings a poor substitute for free academic discussion, even for keeping a limited community informed.

On these matters I take it we are all agreed and no discussion is needed. What is worth discussing in more detail is where we now stand, to what extent free discussion and publication is limited, and what effect this will have in the immediate future.

For this purpose, we must first look at the laws which govern this subject, although here as in many other fields there are many practical factors besides the actual wording of Acts of Parliament. I am not a legal expert. What I am going to say about the legal position represents, therefore, no more than the results of a layman's reading of the Acts. I have not so far succeeded in persuading an expert to give an informed interpretation for me, beyond the statement that any doubt can ultimately be resolved only by bringing a test case and pursuing it

to the House of Lords. I can only hope, therefore, that if any statement made is wrong or questionable it will be attacked in the discussion that, I hope, will follow my paper.

There are two laws which concern us here: the Official Secrets Act and the Atomic Energy Act.

The Official Secrets Act, passed in 1911 and amended in 1920 and 1939, is fairly generally known and I need not spend much time on explaining its provisions.

Broadly speaking it covers, for our purposes, the disclosure of secret information either by people who have been entrusted with the information, or who have obtained access to it by irregular means. Obtaining the information without authority in itself, of course, is an offence under the Act.

Actually, the words 'secret information' or 'secret document' do not occur in the Act. Instead reference is made to information about, or originating from, prohibited places (which include now, for example, the Atomic Energy Research Establishment at Harwell) and alternatively to information which might be directly or indirectly useful to an enemy. Before anyone can be prosecuted under the Act it has to be established that what he did was for a purpose prejudicial to the interests or the safety of the State, though there is a clause providing that the proof of this may be rather indirect.

In practice it is usually understood that as regards scientific or technical information, the material protected by the Act is the contents of documents labelled as secret papers, other work that, when completed, is going to be incorporated in such secret papers, and current research work on which the investigators have been warned that it is secret work.

As regards atomic energy, the Act clearly covers all information in the possession of government employees and of consultants employed by the Government, as well as any information surreptitiously obtained.

In addition to this, there is the secrecy clause in the Atomic Energy Act. Since this provides smaller penalties it will in general not have any effect except in situations to which the Official Secrets Act does not apply.

There must, then, be situations in which the knowledge does not come from official sources. Let us say a physicist working in a university laboratory has made, quite independently and without knowing any official secrets, a new important discovery. Under the Atomic Energy Act it may be illegal for him to publish his results, or even to discuss them with a colleague. A publisher who would publish his paper would also be committing an offence.

Here the distinction between what is secret and what is not is not as straightforward as in the other case; the inspiration does not come to the inventor with the label 'secret' on it, nor does a Geiger counter show a red glow when it is measuring a new effect that is secret. The law, therefore, must contain a definition of the secrets to be kept so that all scientists (or at least those capable of understanding legal language) should know what they are not supposed to do.

Now the definition in the case of the Atomic Energy Act is surprisingly wide. The secrecy clause mentions mainly information about actual or proposed plants for the production of atomic energy. Upon reading this casually, every scientist was breathing a sigh of relief, since it is clear that nobody would seriously claim it as essential to the freedom of scientific discussion to be able to disclose, say, construction details of the plants at Hanford or of the new plant that the Ministry of Supply is proposing to set up in this country. Unfortunately, the Act also provides explanations of the words used in it; and almost every word means something rather different from what it usually means. The word 'plant' means everything from a screwdriver up; it certainly covers any physical or chemical apparatus and, of course, machinery like cyclotrons. The words 'production of atomic energy' are defined in a way which includes any nuclear reaction, such as Rutherford's original experiment on splitting the atom, only natural radio-activity being specifically excepted. Moreover, production of atomic energy also includes any preparatory activity. This might, for example, mean the separation of isotopes. The word 'proposed' is not explained, but apparently if I publish a new design for an atomic pile, I am thereby proposing such a pile.

There are some qualifications. It is not an offence to repeat what has already been published—provided it was published without violating the Atomic Energy Act. This clause, therefore, protects the newspaper which reprints an article from a foreign press agency regardless of origin (since a foreign press agency cannot violate the British Atomic Energy Act!) but not the reporter who publishes a report of a meeting at which a professor or a civil servant may have committed an indiscretion, or the editor of a journal who accepts a paper that goes too far.

A further concession is that the prohibition does not apply to information on methods which are in general use for other purposes than the production of atomic energy unless they give away, by implication, important construction details of atomic energy plants.

All this, however, applies only to information given away 'without consent of the Minister'; this means the Minister of Supply. There is provision for the Minister giving such consent, as it were, in bulk, by making an order exempting certain classes of information. Such an order has been made, and is of very far-reaching effect. If I may attempt to paraphrase the contents of this order, it frees all information about nuclear reactions, methods of observing them, and machines to produce the necessary radiations, with the sole exception of divergent chain reaction involving the fission of heavy elements.

It should be remembered that this exemption applies only to the Atomic Energy Act; some of this information may well be part of the knowledge embodied in secret reports; anybody with access to these is still prevented from disclosing them by the Official Secrets Act.

No similar exemption order has been made in respect of information other than nuclear physics, such as the chemistry of uranium and other

substances, methods of isotope separation, &c., which may be subject to the secrecy clause of the Atomic Energy Act. It is very hard to ascertain how far the clause actually covers such material; if there is sufficient interest at this point we might return to it in the discussion.

This, briefly, is the law. You will have seen that the Atomic Energy Act, coupled with the exemption order, attempts to circumscribe by legal definition the kind of information to be kept secret.

The Official Secrets Act relies on instructions to government employees and there must, therefore, be an administrative machinery to decide what is to be regarded as secret information. In other words, someone has to put a rubber stamp 'Secret' on a new report, and someone must take the responsibility for deciding when a report no longer needs the protection and can be, as it is called, 'declassified'.

The general principle of such declassification is quite clear. The intention which has been laid down as the policy of the appropriate government departments is to release as much of the basic scientific data as is possible and thus to interfere as little as possible with the free interchange of scientific ideas on which the progress of science depends. This is limited, however, by keeping secret all material which has a direct bearing on the design and construction of atomic weapons and all plants producing atomic fuel. It is hoped that this secrecy can be relaxed when there is a satisfactory scheme of preventing, through international control, the misuse of atomic energy for destructive purposes. Until this has been achieved, one wants to prevent this kind of information from being broadcast since it is felt that the problem of preventing atomic warfare would be made more difficult if knowledge of how to make atomic weapons was more widely available. It is hoped that the countries who at present possess all the detailed knowledge about these matters, and this means at present the United States and to a lesser degree this country and Canada, can facilitate the achievement of international control by offering the free exchange of all this information in return for concessions by others which would lead to a satisfactory scheme of international control.

No one has any illusions that by retaining these secrets one could permanently prevent other countries from finding them out for themselves, but by retaining them for the present, one might postpone the time when atomic weapons will be available to all major powers and when a dangerous race in atomic armaments is bound to start, unless by then the problem of international control has been solved.

This gathering is not a place to discuss the basis of this policy and its wisdom, but we must recognize that this is the accepted policy. There is, however, an enormous difference between stating this policy in general terms and implementing it by an actual ruling as to the release or 'declassification' of some particular piece of information. It has, in fact, proved impossible to devise a set of hard-and-fast rules which would tell any worker on the project what part of his information he can freely discuss with others or mention in publications and what part is to remain secret. Instead, machinery has been set up by which reports

containing such information are scrutinized by experts, called 'responsible reviewers', who recommend whether each report can be released. These reviewers must, of course, act on instructions which are embodied in a set of general rules for their guidance. These rules explain not merely what can be released, but also which parts of the work are to remain secret, but even so one never finds in practice that a report one examines falls precisely into any of the categories set out in the rules. The job of the reviewer is to understand the purpose of the rules and to apply them intelligently to the case in hand.

To make the position quite clear, the rules themselves do not release the data on any particular problem. If I want to use, in a discussion, material contained in a report that I have written for the project, I may also happen to be a responsible reviewer and I may know that this report comes into a category which can be declassified under the present rules. Yet it would be illegal for me to disclose it until I had requested the declassification of my report, which would then be sent to some other reviewer for an opinion. The opinions of the reviewers have in themselves no legal force; they act only as advisers and the final responsibility for declassification has to be taken by the officials of the appropriate Ministry who will act on the authority of the Minister, taking into account the recommendation of the reviewer.

In these cases the question of secrecy is not the only obstacle to releasing information. The officials have to bear in mind that the information may represent an invention in the sense of patent law, which may well be of considerable commercial value if it is applicable to engineering problems that go beyond the field of atomic energy. All such inventions made by scientists working for the project are automatically government property. Due regard must be paid to the need for protecting the rights to such an invention, where necessary, by a patent application before they are made public, since otherwise legal complications may arise. I believe, however, that this point may at the worst only delay declassification, not prevent it. If the patent experts discover that information in such a report is patentable and has not yet been covered, they will usually arrange to have a patent application made and then release the information.

It is, of course, a part of the rules for declassification that if a report contains only information which has already been published elsewhere or has been declassified, it should be released. In this way, reviewers can do their work effectively only if they know the contents of all declassified papers and all published articles, &c., at least in their own special field. With the rapidly increasing amount of such literature this represents a most formidable job, and it is unavoidable that occasionally a reviewer should recommend against declassification of a piece of information although this had already been mentioned, say, in a press statement of some official or in some popular article which the reviewer had not seen or does not remember. To remedy this, it is clearly necessary to catalogue all published and declassified information in the field of atomic energy in a way which would make it possible,

without much labour, to turn up all that has been disclosed on some particular point. As far as I know, such a catalogue does not exist as yet; it is hoped that its compilation will be undertaken soon and this would help to speed up declassification procedure and to improve its consistency.

In any case the description which I have given of the rules makes it clear that they cannot work without a good deal of flexibility and without gradually building up a case law. From time to time situations arise which were not foreseen when the rules were drafted and for which no provision is made. In this case a new rule is necessary or it may be necessary to amend the existing rules. In this connexion it is important to remember that this process of declassification goes on in three countries and that its purpose would be nullified if the policies of reviewers in different countries were different. Hence any amendment for extension of the rules needs international consultation and this further duplicates the machinery.

The story does not end when a report has been declassified. It is now the practice of the Ministry of Supply in this country, of the Atomic Energy Commission in the United States, and of the corresponding department in Canada to make copies of any declassified report available immediately to all workers on the project and other suitable people such as research workers in universities or in industry.

The Atomic Energy department of the Ministry of Supply, in particular, publishes lists of titles of such reports from time to time and reasonable requests for the loan of copies are met within the limitation of the number of copies available. Copies are also deposited in the Science Library. In the United States declassified reports are copied on microfilm, and photostatic reprints are obtainable from the Office of Technical Services who also publish lists of titles and brief abstracts. In this country similar arrangements are being made and it is also hoped that eventually copies of American reports will be obtainable through H.M. Stationery Office and British reports in America. In general, such reports are not suitable for immediate publication. They were usually written in a hurry and they usually assume prior knowledge of all previous reports in the same series, of which the earlier ones have meanwhile become obsolete. Very often the reports are also too long and too detailed for publication, especially in these days when space in periodicals is so severely limited. Usually it is, therefore, necessary for the original authors to re-edit their work for publication. Anyone who knows the habits of scientific authors and who remembers that many of them have now returned to work in other fields and are anxious to make up for lost time in these more peaceful pursuits, will appreciate that this job will not get done quickly.

At first this caused an additional obstacle to the availability of such reports, particularly in the United States. The authorities were naturally anxious not to prejudice the chances of an author publishing his declassified work and they feared that if too many copies of the report were already in circulation, scientific journals would no longer regard the

paper as new work and might not accept it for publication when it was finally edited. This, I believe, has now been cleared up satisfactorily by consultation with the editors of the leading journals.

How is all this affecting the position about scientific publications in practice? It is certainly true that there remains on the secret list a good deal of information which would help research if it was available. Some of this is so intimately linked with vital data about plants or weapons that in the present situation we cannot expect to get it released. I can here speak with first-hand knowledge only on information on nuclear physics in particular, and there most of this information is not of a fundamental nature. It would, no doubt, be important for people who want to study the physics of the fission process, or of heavy elements whose properties may be studied by means of the fission process. There are other more specialized techniques that cannot be released and would be helpful, but broadly speaking this type of information is usually not vital for fundamental research. There may be more important things in other fields such as engineering, metallurgy, and chemistry which must remain secret, but which would be of value outside the atomic energy project itself if they could be released. But of these I cannot speak with first-hand knowledge.

There is still a wide class of data which comes under the rules of declassification and which will presumably be declassified once the wheels of the machine have made a sufficient number of revolutions. They will, no doubt, be published if they are of general interest, once their authors have made an effort of preparing them for publication. In some cases the whole field of work dealt with by a particular branch of the project has been or is being written up as one systematic report rather than a number of different papers. The most important example of this is the 'Technical Series' prepared by several branches of the American Atomic Energy Project. These too, of course, have to go through the declassification procedure and as far as I know none of them has as yet been published.

What can be done to speed up declassification and publication? The first point, of course, is to keep reminding those in charge of the importance of scientific discussion and the adverse effect which unnecessary restrictions of freedom has, not only on scientific work in general, but on the efficiency of the work in government laboratories themselves. I need hardly explain that the scientists connected with the atomic energy project, whether in full-time or in a consulting capacity, are not letting any opportunity pass to stress this point. I believe that this situation is clearly understood by everyone concerned and that all officials connected with declassification are doing their best to help rapid and liberal application of the accepted policy.

While the procedure goes on, one can feel the delays produced even within the project by people lacking knowledge to which they would be entitled as members of the project, and which would be essential to their work, but which has not come to their notice since with the best will in the world the observation of security rules and the free

dissemination of knowledge even within a closed laboratory are not compatible. I can see no easy universal remedy to this other than the complete abolition of scientific secrecy, for which at present, I believe, there is no hope. The situation can be alleviated by pressing for a generous interpretation of declassification policy and by impressing continuously the importance of the problem so as to make sure that sufficient effort is put behind the administration machinery on which classification depends.

I have devoted a good deal of time to the effects of the secrecy rules which are based on the Official Secrets Act. This I have done deliberately since I believe that at present the practical effects of the secrecy clause of the Atomic Energy Act are completely negligible, although potentially the legal powers contained in the Atomic Energy Act are very much more drastic.

The reason is, first of all, that at least in the field of nuclear physics, the exemption order under the Atomic Energy Act has, in fact, released almost everything that a scientist not directly concerned with atomic energy would ever want to talk about. It might at first sight appear illogical that this order frees information which would not be declassified under the Official Secrets Act.

If we think it out, however, this is as it should be. The Atomic Energy Act refers to work done outside the Government project. If some information can, in fact, be found in an independent university laboratory, there is not much point in keeping it secret since it is only reasonable to assume that anyone seriously contemplating a major atomic energy project would possess resources at least equivalent to those of a university laboratory.

Another reason why the Atomic Energy Act has little effect is that at the moment a large proportion of the scientists working on problems of the kind we are discussing have knowledge of secret material acquired through work during the war. It is conceivable that putting all their war-time experience aside, they might independently produce some new results which come under the secrecy clause, but in practice this is likely to be influenced by their official knowledge and would, therefore, come under the Official Secrets Act. If any team of university scientists containing a former member of the project obtains results of direct importance for atomic energy, the only way to establish that the inside knowledge had not, in fact, been used would probably be to submit the paper for declassification. This would still be the position if there had never been an Atomic Energy Act.

Yet we should not forget that there are in the Atomic Energy Act powers which, applied in a less intelligent way than they are at present, might well prove extremely dangerous to scientific intercourse. If the Minister of Supply, perhaps some different minister in a different government in the distant future, were to revoke the present exemption order without an adequate substitute, a good deal of scientific information might become excluded from publication and discussion. It does not follow that in reasonable cases people violating the law would be

penalized, but opinions as to what are reasonable situations may differ and the limits can only become clear when at some time someone goes too far. Even where there are no actual prosecutions, their legal possibility may well hamper scientific freedom. It is conceivable that editors of scientific journals, who would also be breaking the law if they merely reproduced a scientist's indiscretion, would be intimidated by the risk and would insist on submitting all papers in a wide range of fields to a voluntary censorship. This would greatly hamper publication. Fortunately, scientific publishers do not seem easily intimidated, at any rate in the brief interval between the passage of the Atomic Energy Act and the exemption order, they happily continued publishing in the normal manner, thereby, no doubt, committing a large number of technical offences. Or might the reason for this be that none of them had read the Atomic Energy Act so that they acted in ignorance of the law?

I belong to the few people who expressed concern at the passage of this clause in the Act, not because of any immediate ill effects, but because of the uncertainty it might create and because its practical advantages were so minute compared to the harm that might be done if it were misapplied. I do not believe there is serious danger of this section being misused and further I am convinced that if ever an attempt were made to misuse it, pressure of public opinion would be exercised strongly against this. This will work, however, only if scientists and those concerned with scientific publications keep themselves informed about the position, to be ready to make their case if it arises.

DISCUSSION

Mr. T. M. Herbert took the Chair for the morning session.

The discussion was opened by Professor R. S. Hutton, who expressed gratitude for Professor Peierl's masterly review of the problems of publication under the secrecy provisions of the Acts of Parliament. He asked if the panels reviewing secret reports for declassification could not with advantage prepare annual reviews of progress in nuclear physics, &c., divided into two or three sections, one section for wide distribution and the others to be put at the disposal of approved individual researchers.

Mr. E. N. Simons then asked how the question of parliamentary privilege was affected by these Acts. For instance, in an unguarded moment an official of the Ministry of Supply might make a statement which was a breach of confidence.

Professor Peierls confessed his inability to deal with this aspect of the question and said that he imagined that the situation would be precisely the same as in any other case, but that if the person in question committed an offence in the House of Commons he would be protected anyway. He was not sure how far Parliamentary Privilege was effective outside the House. Anyway, he did not believe the situation was a very likely one to occur.

In connexion with a query on how the flood of information on atomic energy could be dealt with a suggestion was put forward for an entirely new journal. Professor Peierls said that he did not believe the flood was quite as enormous as might be expected, and he did not think that a special journal devoted to this field would be of particular interest. Much of the vital information was still secret and it would only add to the existing problem of the work which did not get published during the war.

Dr. W. L. Francis then drew attention to the fact that the question of the publication of the results of wartime research in fields other than atomic energy had been considered by a government inter-departmental committee of which Professor A. V. Hill, F.R.S., was Chairman and he, representing the Department of Scientific and Industrial Research, was Secretary. The members of the Committee had agreed that the responsibility for declassification rested with the department in which or for which the work was originally done, and departments had declassified and were declassifying material as fast as they could and to as great extent as possible consistent with security considerations. The position was explained in *Nature*, clvii. 131, 1946. If anyone had any queries he should consult the Secretary of the Committee.

In this country the general practice in the publication of declassified wartime scientific work was *not* to print it in the form in which it was originally written. The authors almost invariably preferred to use their wartime research as the raw material for scientific and technical papers which were brought up to date and put in the correct perspective for appearance in the appropriate professional journals. In this way the *ad hoc* detail and ephemeral considerations, sometimes inevitable in reports written during the war, could be weeded out and only the essentials preserved. This procedure was slow because of the present unavoidable delays in the various stages of declassification, writing, printing, binding, and publication. It was, however, proceeding steadily.

The same practice was followed in the U.S.A., but in addition a speedy method of publication had been devised, primarily for the benefit of industry, by the Office of Technical Services of the Publication Board of the Department of Commerce (see *Chemical and Engineering News*, vol. xxiv, No. 13, 10 July 1946, p. 1795). The functions of the O.T.S. were:

(*a*) to review all classified scientific information of U.S.A. foreign and enemy origins;
(*b*) to secure the declassification of as much as possible;
(*c*) to publish abstracts of the information in a weekly Bibliography of Scientific and Industrial Reports (Yellow Books);
(*d*) to supply on request photostat copies of the articles abstracted.

Although by no means all the material disseminated in this way was of great value, the procedure had the advantage of speed and was said to be greatly welcomed by American industry.

Consideration was at present being given in this country by the government departments concerned to speeding up the declassification of British war-time research reports and their publication for the benefit of industry. If the outcome was satisfactory it might also be possible to negotiate an exchange arrangement with the U.S. Office of Technical Services.

Mr. A. L. Williams asked if the speaker had any information on the correct procedure for declassification of secret reports on war-time projects other than those of the Department of Atomic Energy. In reply Professor Peierls said that he thought the answer was in what Dr. Francis had just said. Most of the secret work was undertaken at the request of a government department and it was for that department to consider the request. Hasty publication might be very much worse than no publication at all, but in the case of atomic energy it would be impracticable to act in any other way than through the present declassification system. Another point was that there was still considerable uncertainty and many people did not realize that nuclear physics was still a very new field.

Dr. D. J. Urquhart drew attention to the fact that the necessity for a declassification procedure did not apply only to reports on atomic energy and to reports of research work carried out at the request of government departments during war-time; it should also apply to a considerable volume of technical information gathered by commercial organizations which was originally not published because of its commercial value and which quite often remained confidential after the commercial value of secrecy had disappeared.

Dr. R. S. Schultze pointed out that many industrial research laboratories published the results of their investigations quite freely. In the Kodak Research Laboratories, for instance, it was the established policy that the results of their scientific research be

made easily accessible to all interested in special branches of science. Most of the original (confidential) research reports were therefore rewritten (after forming the basis of patent applications) and published in standard scientific journals. More than 1100 of them were collected in the twenty-eight volumes of the annual *Abridged Scientific Publications from the Kodak Research Laboratories* (Rochester, N.Y.).

The Chairman then proposed a very hearty vote of thanks to Professor Peierls for his address and replies to questions, which was carried unanimously.

PUNCHED-CARD SYSTEMS AND THEIR APPLICATION TO LIBRARY AND TECHNICAL WORK

I. SOME APPLICATIONS OF MECHANICAL METHODS TO LIBRARY PROBLEMS IN ORGANIC CHEMISTRY

By G. MALCOLM DYSON

Technical Director, Genatosan Ltd.

I MUST premise these remarks by stating that the field of my work has been, so far, restricted to problems relating to indexing and documentation of organic chemistry; on the other hand, the philosophy of classification and indexing is a general one, and it may be that a logical account of difficulties encountered and overcome will assist others working in different fields.

It is essential in any field to ascertain and determine with accuracy and precision the limits and natural subdivisions of the subject before any thought can be given to the mechanisms which may be employed to manipulate such material. In organic chemistry there is a vast mass of knowledge disseminated through the literature, covering data on, perhaps, half a million substances—and the number of substances which can, if necessary, be synthesized by known methods is astronomically large. Any systematization of such knowledge must, therefore, take care not only of what is already known, but of the vast amount which has yet to be discovered. In surveying so large an amount of material, search must first be made for some convenient 'constant factor', or fiducial base-line, to which all subsequent operations can be related. In organic chemistry the 'constant factor' is, of course, the structure—a factor which the organic chemist visualizes in terms of ideographs or structural formulae. This is an intrinsic factor of matter, and affords the most convenient classifying point, since matter of any given sort must have a constant composition.

Thus, pentane and *cyclo*hexanol, or, indeed, any organic compounds, possess unique structures which are, fundamentally, the repeat unit in the molecular pattern; other attributes, such as certain physical properties, may prove identical for widely differing structural forms.

The properties of organic compounds may, therefore, be considered to have *structure* which is unique and *attributes* which are not unique. An example may be given of ten compounds having an identical melting-point; each has, however, a unique structure. As a consequence, a classification of organic compounds based on structure must, if pushed to its logical conclusion, serve to produce a series of classes each containing one member alone. It is, therefore, the most satisfactory basis for arriving at an ordered arrangement of this field.

The rapidly growing mass of information which contributes the literature of organic chemistry must, therefore, be provided with paths which will lead with speed and certainty to all the information on any given topic. It is clear that this can be attained only by cataloguing the information under the headings formed by the structures of individual compounds and providing a secondary means of collecting information on attributes.

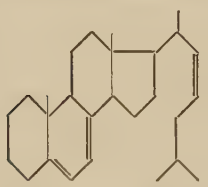
Classification

The ideograph, although it reflects the uniqueness of an organic structure, cannot serve of itself as a means of classification, as it has no intrinsic basis of arrangement; it occupies much space, has no direct speech equivalent, and has other technical disadvantages which need not be here described. It must, therefore, be given a linear equivalent or name. In the older systems of nomenclature based on the so-called 'Geneva' system, promulgated in 1892, the clarity and uniqueness of the ideograph became lost; different nomenclature equivalents became current for the same structure in different countries and British, Continental, and American usages diverged gradually until they became impossible to reconcile. The absence of definitive rulings led to the creation and perpetuation of an increasing number of 'trivial' names, which, whilst indisputably convenient for the ordinary language of everyday organic chemistry, are only a source of confusion in chemical systematics.

The more this aspect of the problem was examined, the clearer did it become that the 'fiducial' point in all organic chemistry classification must be a linear and unambiguous expression of structure in which the uniqueness of the ideograph is preserved. This could not be arrived at by commencing from the existing methods of nomenclature, so an entirely new notation was devised in which the desiderata of brevity, uniqueness, and recognizability are maintained.

I do not propose to give a detailed account of this notation here, but would draw attention to the following points:

1. All details of structure, as expressed by the ideograph, are faithfully reproduced in the linear form, as, for example,



= HJ8.17C6.2,13,18,22C.9–14,10,19E.

2. The proper application of the rules can result in only one linear expression for structure; there are no alternatives, so that each structure can *only* be expressed in a single form.
3. The ciphers can be indexed easily in proper order; Appendix I shows the index to a volume (C8) of Faraday's encyclopaedia. It will be observed that this cipher index occupies about one-tenth

of the space required for an index of the older names (including alternatives). It is also very easy to search, and attention is drawn to the fact that if the ciphers of all known organic compounds are arranged in similar fashion, a rigid invariant expression of the field of organic chemistry is arrived at.

4. The ciphers are easily intelligible to the trained eye; referring again to the index shown as an example in Appendix I it is only a matter of fractions of a second for an organic chemist mentally to turn the cipher $AC_5.C_3.E$ into the ideograph

$CH_2CH_2CH_3$.

Thus it is possible to arrange the whole data of organic chemistry in proper order, under the headings of the appropriate structural ciphers.

The Librarian and the Organic Chemist

It is now appropriate to examine in greater detail the types of question which the worker in the organic chemical field is likely to ask of the specialist library. Such questions largely fall into the categories:

1. Requests for certain data concerning an individual compound.

   Examples

   (*a*) All data concerning the synthesis of D.D.T. (Dichlorodiphenyltrichloroethane);
   (*b*) a complete survey of the physical properties of propanol;
   (*c*) a satisfactory method of synthesizing ninhydrin.

2. All the data concerning a particular compound.

   Example

   A complete survey of all the recorded data on strychnine.

3. Some (or all) of the data available concerning one or more attributes.

   Examples

   (*a*) A list of all compounds known to have a refractive index between certain stated values;
   (*b*) a list of all compounds having a narcotic action;
   (*c*) a list of all compounds produced (or claimed to be produced) industrially, having a narcotic action;
   (*d*) a survey of the use of tetralin in the paint industry;
   (*e*) a survey of the analytical methods used in determining scopolamine;
   (*f*) an account of the literature of resonance in organic compounds.

The specialist, in answering such questions, has to consider two main points: the path by which these problems may be approached, and the tools that can be used to obtain the required answers in a reasonable time. I am going to make the assumption that the chief path of approach is through the structure of the compounds themselves, and shall, therefore, proceed immediately to a consideration of the second part of the problem, that of the tools required to provide the desired answers.

Access to a complete assembly of primary sources, journals, and monographs is all that is theoretically required to obtain the answers to the questions. In practice we know that life is too short to use so laborious a method of searching, and abstracts and compendia are the most widely used secondary sources.

Assuming first that the worker has asked the right question of the library (and he is often capable of asking the wrong one!)—the measure of the success of the answer is probably its completeness. It may be 'complete' in the sense of actually containing within it all the required data or in indicating with precision to the original sources in which the data is contained: in either case the coverage will depend on three quite distinct, and important, factors:

1. The coverage of the secondary source in relation to its primary origins, i.e. the fidelity and completeness of the work of the abstractor.
2. The provision of proper and adequate paths from the indexes to the abstract; here the skill and ingenuity of the indexer are involved.
3. The care with which the search is carried out; largely a function of the skill and thoroughness of the librarian.

Naturally the librarian has no control over the first two items; fortunately, in organic chemistry we have two magnificent teams of abstractors at work—in the U.S.A. under the direction of Dr. E. J. Crane of *Chemical Abstracts* and in this country under the editorship of T. F. Burton of the Bureau of Abstracts, and the whole field is well covered. Even so, it is impossible in an abstract to give *all* the data of the primary source, and therefore there is some material to which no path is available from abstract to original; likewise, it is impossible in the index to provide references to every topic of the abstract. In Appendix II is shown the British and American abstracts of a British Patent No. 577,634. Comparison of these with each other and with the original specification will show that each has lost much factual material in condensation, but that the losses are not the same in each; thus, use of both is preferable to the use of either alone, but even so some of the original material will be buried. Again, the Indexes cannot be expected to show a reference under the heading 'pyridine', although that substance is cited in the Patent and mentioned in the abstract as a catalyst; since the only path to the data is through the index, a further loss of available material is inevitable. Finally, the librarian, even if equipped professionally to carry out bibliographic researches in the

field of organic chemistry, cannot devote unlimited time to an individual search.

Mechanical Methods

The foregoing remarks prompt the question as to whether other methods of preparing and handling secondary sources can be used effectively to lower the losses in the various stages of transmitting information. The chief means which have been proposed for cutting short the search are the use of

1. compendia;
2. edge-notched cards;
3. punched cards;
4. electronic devices;
5. the Bush selector.

Of compendia, the most useful to the organic chemist is the monumental work of Beilstein. The fourth edition of this work is still being issued; the original series of volumes and the first supplement are completed—surveying the field of organic chemistry up to 1919. The second supplement, bringing the work up to 1929, was interrupted by the Second World War and only six of a probable eighteen volumes had been issued when publication ceased. Now, under the editorship of Dr. Richter, the firm of J. Springer has recommenced the issue of volumes of the second supplement which it is hoped will be complete by 1951. Even then it will be two decades in arrears, and the forefront of organic chemical research will be advancing faster than this chronicle can overtake it. Consequently, it must be admitted that the ordinary methods of compiling the 'Handbook' will, if the gap is to be closed, have to be supplanted by a more rapid method of classifying and disseminating the collected information. Thus, however useful a detailed compendium may be to the user, it can only effect a substantial saving of library time if it is:

(*a*) exhaustive;
(*b*) up to date;
(*c*) conveniently arranged.

These desiderations can only be achieved by mechanical handling of data or by an impossibly large and expert staff.

Edge-notched cards are of great value to the individual investigator, or for the small institutional and specialist library. They enable the structure of an organic compound to be correlated with certain chosen (but not all) attributes, and are sufficiently flexible to allow of each investigator to modify his notched coding to suit his own needs. It is doubtful whether their use could be satisfactorily extended to a complete detailed survey of the whole field of organic chemistry.

It is in connexion with edge-notched and punched cards that the concept of a fixed and unique designation (fiducial notation) of each structure is so important; if structure is accepted as the thread which

runs through the whole tissue of organic chemical knowledge it can obviously serve as the basis of classification, indexing, and searching, but a fiducial notation is essential as a unifying factor. This is shown in Figure 1, which is intended as a schematic representation of the whole

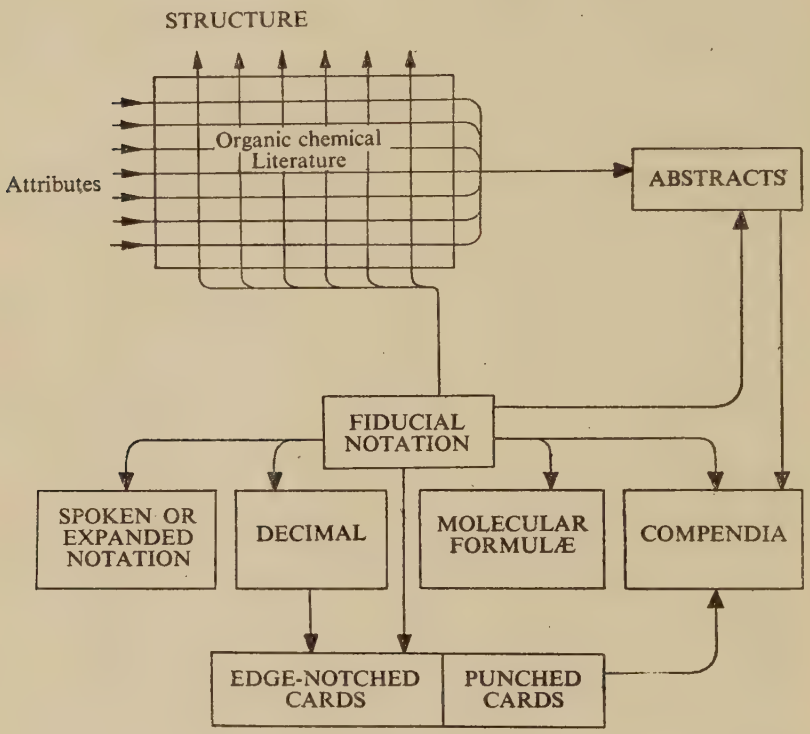
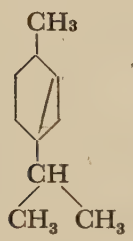


Figure 1

field, and may, perhaps, be illustrated by the following example. The simple hydrocarbon, shown in the ideograph below,



—has been variously known as:
Thujane,
Isopropyl, 4-methyl, 4-3 endocyclohexane,
1-Isopropyl-4-methylbicyclo[3.1.0] hexane,
4-Methyl-1-methoethyl-bicyclo[0.1.3] hexane.

Distributed throughout the literature of organic chemistry (Figure 1) will be data concerning the physical and pharmacological properties of this compound and also on its industrial and other applications. To refer to all this through the ordinary methods means a long library

search under various names, or a shorter reference to the compendia (if such is in existence).

Translated into Dysonian notation this structure becomes:

$$AC6.1\text{–}3A.C2.4,7C,$$

an expression which allows of no variants or alternatives, either in operations, enumeration, or order of citation; by the organic chemist it can be translated to the ideograph instantaneously, and its mathematical exactness can be checked on a computing machine, since by adding together the constants associated with each operation the molecular formula is obtained. So much for the fiducial nature of the notation; in its use on various media it can be

1. Translated to a pronounceable nomenclature (expanded form) by equating the operations to syllables, e.g.:
   AC6.1–3A.C2.4,7C becomes
   Cyclohexane, 1–3cyclo, 1-ethyl, 4,7-dimethyl.
   This is as invariant as the cipher, and preserves the same fiducial quality, thus enabling an indexing order to be established.
2. Experiments have shown that the notation can be translated into decimal, and it is proposed to set up a new classification of 661 on the basis of the new method.
3. Entered exactly on an edge-notched card, so that the whole structure or any part of the whole structure can be sorted by needling.
4. Entered on a punched card using one of several novel methods of punching.

Edge-notched cards

If a double row of holes be punched across the top of a card the total number of registrations that can be obtained using any or all of the positions *a*, *b*, and *c* below is given by

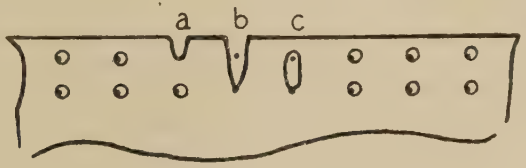


Figure 2

the formula

$$N = 4^n - 1 \qquad (1)$$

whilst the corresponding formula for the use of positions *a* and *b* alone is

$$N = 3^n - 1. \qquad (2)$$

In all cases N = the number of registrations and n the number of pairs of holes considered.

The general formula for any number of rows of holes is

$$N = (\alpha+1)^n - 1 \qquad (3)$$

where α is the number of registrations possible in each vertical column of holes. Thus in a card with three rows of holes across it, the use of the positions shown as a, b, c, d, e, f, g in Figure 3 enables $(8^n - 1)$ registrations to be used,

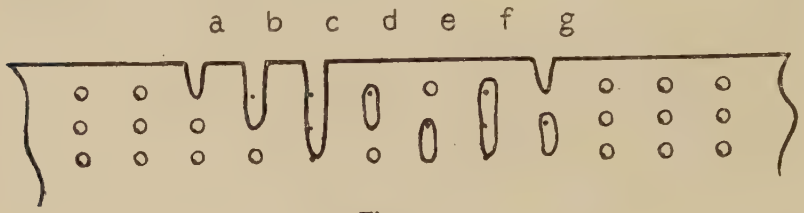


Figure 3

while for x rows of holes considered in columns n at a time the formula takes the general form

$$N = (2^n)^x - 1. \qquad (1)$$

In Table I is shown the values of N for various values of x and N.

TABLE I

Values of N (*maximum registration number*)

	Values of x				
N	*1*	*2*	*3*	*4*	*5*
1	1	3	7	15	31
2	3	15	63	255	1023
3	7	63	511	4095	32767
4	15	255	4095	65535	1048575
5	31	1023	32767	1048575	16777215
6	63	4095	262143	16777215	5.37×10^8

It will be observed that two sets of holes on a card with a triple row enables 63 registrations to be effected. This will enable a card 10 in. × 8 in. with a triple row of holes on one long and two short sides to accommodate 100 columns of three holes or 50 symbols. This is sufficient for a *direct* recording of the notation using the first 30 positions for units and 33 for letters and symbols.

It is seldom, however, that a direct coding of the full cipher is required on edge-notched cards, and the user will have an abbreviated system of notching his more commonly used group of symbols. This matter cannot be further discussed here, but a communication dealing with the details of this topic is about to be published.

Punched Cards

The ordinary Hollerith card with eighty columns of twelve positions punched once or twice per column does not offer the necessary number

of permutations to enable a direct punching of the cipher to be made without absorbing a considerable portion of the card. Choice must, therefore, be made between using a secondary code or of altering somewhat the method of punching and sensing. The use of a secondary numerical code is cumbrous and has the disadvantage of being bulky inasmuch as any attempt to make the same characteristics appear in any given constant position introduces the same philosophical difficulty

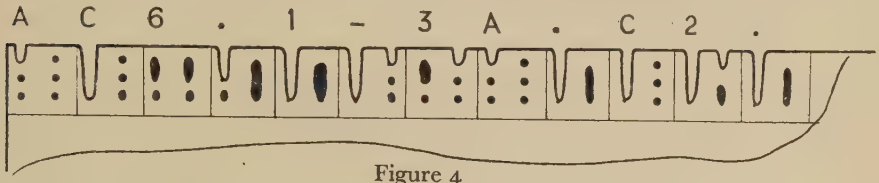


Figure 4

as is met with in using decimal for ultimate classification. It was, therefore, decided to explore the alternative method. In order to place a cipher, such as that already cited, viz:

AC6.1–3A.C2.4,7C

economically on the card, each column should be capable of accepting any letter up to 35 (– to include A–Z and such marks as ( ) [ ] /; and so on) or any figure up to 99, together with the marks . , - . To do this the significations shown in Figure 5 are attached to each hole.

Any or all of the holes 1–9 may be punched together with *one* only of the holes 10–12. The translation of the cipher

AC6.1–3A.C2.4,7C

to Hollerith is done as shown in Figure 5, the hole 1 signifying by its presence a letter and by its absence a figure; by the enumeration of the punchings of holes 2–9 we arrive at the number of letter and figure and by using holes 10–12 the more common signs are added.

In this way the number of columns used is always less than the number of symbols in the cipher and in the case cited 11 columns are used for 16 symbols. The apparent disadvantage is that it is impossible to foretell in which column any given characteristic will appear. This means that searching can only be carried out column by column ('punch' sorting).

Such cards rarely use more than twenty columns for recording a structure, so that the remainder of the card is available for recording other data. Figure 6 shows a card in which the structure of thujane—AC6.1–3A.C2.4,7C—is recorded together with its physical data.

As a set of cards can easily be reproduced mechanically, several indexes can be set up each comprising a statement of structure and some other attribution, e.g.

Literature references (primary);
Abstract references;
References to attributed properties, e.g. pharmacological bacteriological, insecticidal properties, and industrial usage.

By passing the whole stock of cards through a sensing mechanism (using, of course, punch sorting) the contacts will feel through the holes and the impulses so generated can be used

(*a*) to print a list of all cards, with all the data punched;

(*b*) to print a list of selected cards bearing

(i) all compounds possessing certain structural features;

(ii) all compounds having a given attribute or range of attributes;

(*c*) the literature references to a single structure;

(*d*) the literature references to a given range of attributes.

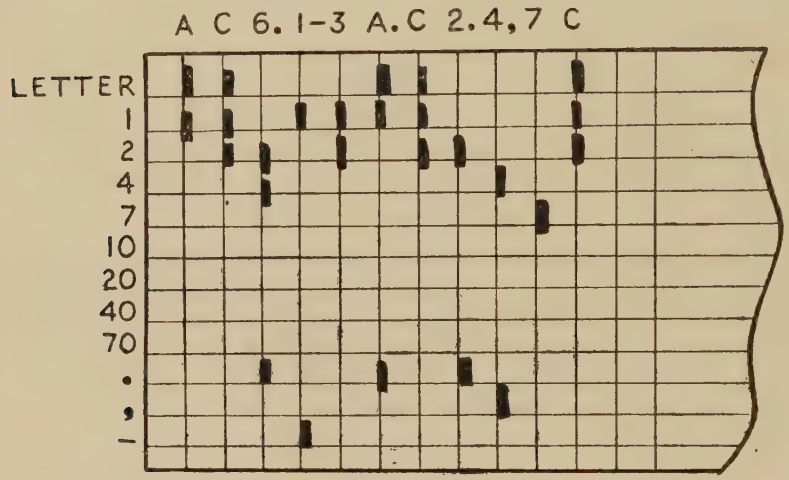


Figure 5

In other words, from suitably arranged stacks of cards the machine will give the answer to all the questions which are set out in the earlier part of this paper. One can, therefore, visualize an appendage to the library. In it, the data of organic chemistry will be punched on a number of cards; those cards will probably be arranged in convenient subdivisions and by mechanical means the answers to questions can be provided. Answers can be filed as lists or in the case of certain important sub-classifications can be reproduced in card form; for instance, a special list of all dyestuffs could be prepared, and a separate punched-card file of all such reconstructed. This would enable queries concerning dyestuffs to be answered without handling the main mass of cards.

REFERENCES

1. G. M. Dyson, *A new notation and enumeration system for organic compounds*. Longmans. London & New York. 1947.

2. G. M. Dyson, 'The application of notched cards to a new notation in organic chemistry'. In the press.

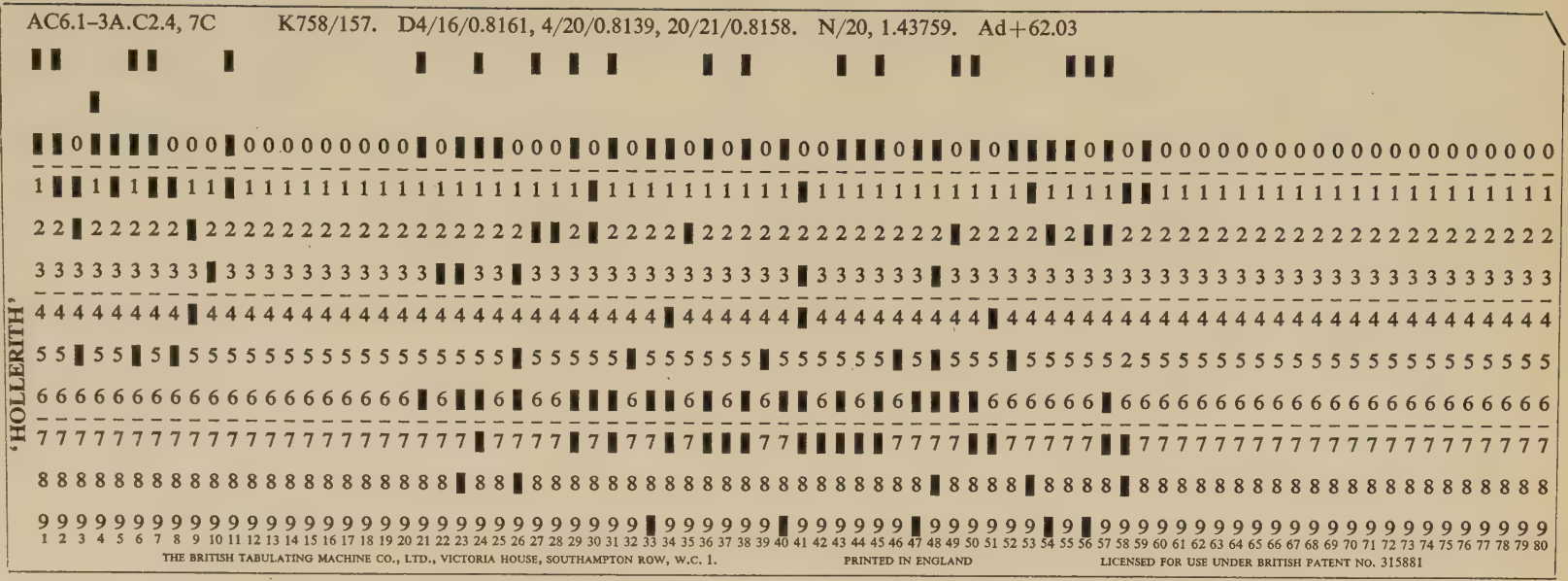

AC6.1–3A.C2.4, 7C K758/157. D4/16/0.8161, 4/20/0.8139, 20/21/0.8158. N/20, 1.43759. Ad+62.03
'HOLLERITH'
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
THE BRITISH TABULATING MACHINE CO., LTD., VICTORIA HOUSE, SOUTHAMPTON ROW, W.C. 1.
PRINTED IN ENGLAND
LICENSED FOR USE UNDER BRITISH PATENT NO. 315881

Figure 6

3. G. M. Dyson, 'A New System of Notation for Organic Compounds' (paper read at International Congress of Pure and Applied Chemistry, London 1947). In the press.

4. G. M. Dyson, 'Some applications of the Dysonian notation of organic compounds' (a paper read at the Annual Congress of the American Chemical Society, Atlantic City, 1947). In the press.

APPENDIX I

C_8 Volume of Faraday's Encyclopaedia

B8
B8.1,?H

B.1–2AC2
B.C2
[B.C2] πn
B.C2.3,4H
B.C2.(H)2
B.C2.7E
[B.C2.7E]πn
B.C2.7E3
[B.C2.7E3]πn
B.1,1C.1,2H
B.1,1C.1,4H
B.1,2C.
B.1,2C.1,2H
B.1,2C.4,5H
B.1,2C.(H)2
B.1,3C
B.1,3C.1,2H
B.1,3C.1,6H
B.1,3C.5,6H
B.1,4C
B.1,4C.1,2H
B.1,4C.1,4H
B.1,4C.2,3H
B.1,4C.2,5H
[B.1,4C.(H)2]πn
B.(C)2

V.C3.H.1–6E
V.C2.3C.4H
V.C2.6C.H.1–6E

AC8
AC8.1–4A
AC8.1–5A
AC8.(A)
AC8.1–4,5–8A
AC8.E
AC8.1,4E
AC8.1,5E
AC8.E.3
AC7.1–3AC
AC7.1–4AC
AC7.1–4AC.6E

AC7.C
AC7.C.E
AC.C.1–8E
AC7.C.4E

AC6.1–4AC2
AC6.1–4AC2.2E
AC6.1–4AC.2C
AC6.1–4AC.2C.2–8E
AC6.1–4AC.2C.5E
AC6.1–3A.2,2C
AC6.1–3A.5,5C
AC6.C2
AC6.C2.E
AC6.C2.E.7E3
AC6.C2.1–7E
AC6.C2.2E
AC6.C2.2E.7E3
AC6.C2.7E
AC6.C2.(E).7E3
AC6.C2.1,7E
AC6.C2.1–7,2E
AC6.C2.1–7,3E
AC6.C2.1–7,7E
AC6.C2.3,7E
AC6.C2.?,7E
AC6.C2.7E3
AC6.1,1C
AC6.1,1C.2E
AC6.1,1C.3E
AC6.1,1C.(E)
AC6.1,2C
AC6.1,2C.E
AC6.1,2C.1–7E
AC6.1,2C.2E
AC6.1,2C.(E)
AC6.1,2C.1–7,2E
AC6.1,3C
AC6.1,3C.E
AC.1,3C,1–7E
AC6.1,3C.3E
AC6.1,3C.4E
AC6.1,3C1–7,2E
AC6.1,4C
AC6.1,4C.E
AC6.1,4C.1–7E
AC6.1,4C.(E)
AC6.1,4C.1–7,2E
AC6.(C)2

AC5.C3
AC5.C3.E
AC5.C3.7E
AC5.C3.(E)
AC5.C3.1,6E
AC5.C3.6E3
AC5.C3.E3
AC5.C2.2C
AC5.C2.2C.E
AC5.C2.2C.1–6E
AC5.C2.2C.5E
AC5.C2.2C.1–6,2E
AC5.C2.3C
AC5.C2.6C
AC5.C2.6C.E
AC5.C2.6C.1–6E
AC5.C2.6C.2E
AC5.C2.(C)
AC5.1,1,2C
AC5.1,1,2C.2E
AC5.1,1,2C.3E
AC5.1,1,2C.4E
AC5.1,1,3C
AC5.1,2,3C
AC5.1,2,3C.E
AC5.1,2,4C
AC5.(C)3

AC4.C3.6C
AC4.1,2C2
AC4.1,2C2.5,7E3

AC3.C3.4C2.4E
AC3.C3.2,5C
AC3.C2.1,2,2C
AC3.1,2C2.C

C8
C8.E
C8.E,3E3
C8.2E
C8.3E

C8.4E
C8.(E)
C8.1,2E
C8.1,3E
C8.1,6E
C8.2,3E
C8.2,4E
C8.3,5E
C8.(E)2
C8.1,3,5E.7E3
C8.1,3,7E.5E3
C8.2,4,6E
C8.E3
C8.2E3
C8.4E3
C8.1,6E3
C8.1,7E3
C8.2,6E3
C8.3,5E3

C7.2C
C7.2C.E
C7.2C.2E
C7.2C.3E
C7.2C.4E
C7.2C.4E.?E3
C7.2C.5E
C7.2C.6E
C7.2C.(E)
C7.2C.1,3E
C7.2C.1,5E
C7.2C.2,4E
C7.2C.2,6E
C7.2C.3,5E
C7.2C.4,6E
C7.2C.1,3,5E
C7.2C.2,4,6E
C7.2C.4,5,6E
C7.3C
C7.3C.E
C7.3C.2E
C7.3C.3E
C7.3C.3–8E
C7.3C.3–8E.1,6E3
C7.3C.5E
C7.3C.(E)

C7.3C.1,3–8E
C7.3C.1,5E
C7.3C.2,4E
C7.3C.2,6E.4E3
C7.3C.3,5E
C7.3C.1,3,5E
C7.3C.1,3–7,6E
C7.3C.1,4,5E
C7.3C.2,4,6E
C7.4C
C7.4C.E
C7.4C.2E
C7.4C.3E
C7.4C.(E)
C7.4C.1,5E
C7.4C.2,4E
C7.(C).(E)2

C6.3C2
C6.3C2.2E
C6.3C2.3E
C6.3C2.(E)
C6.3C2.1,5E,7E3
C6.3C2.2,5E
C6.3C2.3,5E
C6.2,2C
C6.2,2C.3E
C6.2,2C.3,4E
C6.2,3C
C6.2,3C.2E
C6.2,3C.3E
C6.2,3C.3–7E
C6.2,3C.1.5E
C6.2,4C
C6.2,4C.5E
C6.2,4C.(E)
C6.2,4C.1,5E
C6.2,4C.2,4E
C6.2,4C.2,4–8E
C6.2,5C
C6.2,5C.E
C6.2,5C.2E
C6.2,5C.3E
C6.2,5C.1,3E
C6.2,5C.1,5E
C6.2,5C.1,5E.3E3

C6.2,5C.2,3E
C6.2,5C.2,4E
C6.2,5C.1,3,4E
C6.2,5C.1,3,5E
C6.2,5C.2,3,4E
C6.3,3C
C6.3,3C.4E
C6.3,3C.5E

C6.3,3C.1,5E
C6.3,4C
C6.3,4C.E
C6.3,4C.2E
C6.3,4C.3–7E
C6.3,4C.1,5E
C6.3,4C.2,4E
C6.(C)2

C5.3C2.2C
C5.3C2.2C.2E
C5.3C2.3C
C5.3C2.3C.E
C5.3C2.3C.E3
C5.2,2,3C
C5.2,2,3C.3E
C5.2,2,3C,3–8E
C5.2,2,3C.(E)
C5.2,2,3C.3–8,4E
C5.2,2,4C
C5.2,2,4C.3E
C5.2,2,4C.4E
C5.2,2,4C.(E)
C5.2,3,3C
C5.2,3,3C.E
C5.2,3,3C.3E
C5.2,3,3C.4E
C5.2,3,4C
C5.2,3,4C.2E
C5.2,3,4C.3–7E
C5.2,3,4C.(E)
C5.(C)3.(E)

C4.2,2,3,3C

[C3.2C.E]π2
[C2.E3]π4

APPENDIX II

Manufacture of basic esters of α-alkyl- or α-*cyclo*alkyl-arylcarbinols. J. R. Geigy A.-G. (B.P. 577,634, 22.9.43. Switz., 23.9.42).—Dialkylaminoalkylcarboxylic acid (**I**) esters of aryl-alkyl- and -*cyclo*-alkyl-carbinols are prepared by the usual methods. *E.g.*, by treating the carbinols with the chloride of (**I**) or with halogenoalkylcarboxyl chlorides followed by replacement of the halogen with ·$NAlk_2$, or from the Ag salts of (**I**) with α-arylalkyl halides. The products and their quaternary NH_4 salts (claimed but not described) are stated to be therapeutic agents of high spasmolytic action. *E.g.*, the following are described: α-*phenyl*-n-*butyl*, b.p. 170—171°/12 mm., α-p-*tolyl*-n-*butyl*, b.p. 121—128°/0·1 mm., α-3: 4-*dimethylphenyl*-n-*butyl*, b.p. 125—128°/0·05 mm.,

α-1-*naphthyl*-n-*butyl*, b.p. 167—171°/0·1 mm., α-p-*chlorophenyl*-n-*butyl*, b.p. 121—124°/0·1 mm., α-*phenyl*-γ-*methyl*-n-*butyl*, b.p. 138—140°/0·8 mm., α-3: 4 *dimethylphenyl*-n-*amyl*, b.p. 132—136°/0·1 mm., ω-cyclo*hexylbenzyl*, b.p. 151—156°/0·03 mm. (*hydrochloride*, m.p. 192—194°), and ω-cyclo*hexyl*-4-*methylbenzyl*, b.p. 155°/0·2 mm., β-*diethylamino-propionate*; α-*phenyl*-γ-*methyl*-n-*butyl*, b.p. 138—140°/1·2 mm., and α-3: 4-*dimethylphenyl*-γ-*methyl*-n-*butyl*, b.p. 140—142°/0·15 mm., β-*dimethylaminopropionate*; α-*phenyl*-γ-*methyl*-n-*butyl diethylaminoacetate*, b.p. 162—164°/12 mm.; α-p-*tolyl*-n-*butyl*, b.p. 117—122°/0·2 mm., α-3: 4-*dimethylphenyl*-n-*butyl*, b.p. 127—129°/0·1 mm., α-1-*naphthyl*-n-*butyl*, b.p. 155—162°/0·1 mm., α-p-*chlorophenyl*-n-*butyl*, b.p. 128—131°/0·1 mm., α-3: 4-*dimethyl-phenyl*-n-*amyl*, b.p. 141—143°/0·3 mm., and ω-cyclo*hexylbenzyl*, b.p. 139—142°/0·1 mm., β-*bromopropionate*; α-*phenyl*-γ-*methyl*-n-*butyl chloroacetate*, b.p. 145—148°/12 mm.; α-p-*tolyl*-n-*propyl*-, b.p. 110—116°/12 mm., α-3: 4-*dimethylphenyl*iso*butyl*-, b.p. 125—134°/12 mm., α-3: 4-*dimethyphenyl*-n-*butyl*-, b.p. 145—152°/15 mm., and cyclo*hexyl*-p-*tolyl-carbinol*, b.p. 131—135°/0·1 mm.

J. L. G.

—**Basic esters of α-alkyl- or α-cycloalkylaryl carbinols and their quaternary ammonium salts**. J. R. Geigy A.-G. **Brit. 577,634,** May 27, 1946. Disubstituted aminoalkyl carboxylic esters of α-alkyl- or α-cycloalkylaryl carbinols of the general
b formula XCOOCArYZ, where X is an *N*-disubstituted aminoalkyl radical, Ar is a substituted or unsubstituted aryl radical, Y is H or an alkyl or cyclo-alkyl radical, and Z is an alkyl or cycloalkyl radical, and their quaternary ammonium salts are claimed
—as prepd. by any of the known methods. These compds., like the corresponding ethers (*C.A.* **40**, 3567[6]), exhibit a pronounced *atropinelike antispasmodic* activity, particularly at the smooth musculature of the intestine. They also have pronounced
c papaverinelike activity, anesthetic properties, and *bactericidal action.* Although many possible methods of prepn. of the compds. are outlined, all the examples were prepd. either by reaction of the Ag salt of a dialkyl-aminoalkyl carboxylic acid with an α-alkyl benzyl halide, or by reaction of a haloalkyl carboxylic halide with an α-
—alkyl- or α-cycloalkylaryl carbinol in the presence of pyridine, and the product aminated with a dialkylamine. α-*Propylbenzyl* β-(*diethylamino*)*propionate*, b_{12} 170–2°,
d was prepd. by refluxing $Et_2NCH_2CH_2CO_2Ag$ 12 and PhCHPrBr 10 in abs. alc. 100 parts 6 hrs. The alc. was removed *in vacuo*, and the residue taken up in dil. HCl. After extn. with ether, the HCl soln. was cooled in ice, made alk. with K_2CO_3 soln.,
—and the free base extd. with ether. *Propyl*(*p-methylphenyl*)*methanol* (I), b_{12} 110–16°, was prepd. from *p*-tolualdehyde and PrMgBr. To a cooled mixt. of I 20 and dry pyridine 10 in dry ether 100 was added with stirring $BrCH_2CH_2COCl$ 20 parts. The mixt.
e was refluxed 1 hr., cooled, and dild. with water. The ether soln. was washed with cold dil. Na_2CO_3 soln., dried, and distd. to give α-*propyl-p-methylbenzyl* β-*bromo-*
—*propionate* (II), $b_{0·2}$ 117–22°. II 18 was cooled and Et_2NH 20 parts was added. This mixt. was refluxed (no solvent?) 2 hrs. at 70–80°, excess dil. HCl added, and extd. with ether. The acid soln. was made alk. in the cold with K_2CO_3 soln. and the free
f base extd. with ether. Distn. yielded 13 parts α-*propyl-p-methylbenzyl* β-*diethylamino-propionate*, $b_{0·1}$ 121–8°. In a like manner the following compds. were prepd.: α-*Propyl-3, 4-dimethyl-benzyl* β-*bromopropionate*, $b_{0·1}$ 127–9°; β-*diethylamino analog*, $b_{0·05}$ 125–8°; 1-(*1-naphthyl*)*butyl* β-*bromopropionate*, $b_{0·1}$ 155–62°; β-*diethylamino analog*, $b_{0·1}$ 167–71°; α-*propyl-p-chlorobenzyl* β-*bromopropionate*, $b_{0·1}$ 128–31°; β-*diethylamino analog*, $b_{0·1}$ 121–4°; α-*isobutylbenzyl* β-*diethylaminopropionate*, $b_{0·8}$ 138–40°; β-*dimethylamino homolog*, $b_{0·1}$
g 138–40°; α-*isobutylbenzyl chloroacetate*, b_{12} 145–8°; *diethylaminoacetate*, b_{12} 162–4°; *iso-butyl*(*3,4-dimethyl*)*phenylmethanol*, b_{12} 125–34°; β-*dimethylaminopropionate*, $b_{0·15}$ 140–2°;
—α-*butyl*-γ,*4-dimethylphenylmethanol*, b_{15} 145–52°; β-*bromopropionate*, $b_{0·3}$ 141–3°; β-*diethyl-aminopropionate*, $b_{0·1}$ 132–6; α-*cyclohexylbenzyl* β-*bromopropionate*, $b_{0·1}$ 139–42°; β-*diethyl-amino analog*, $b_{0·03}$ 151–6° (*HCl salt*, m. 192–4°). α-*Cyclohexyl-p-methylphenylmethanol*,
h $b_{0·1}$ 131–5°; β-*diethylaminopropionate*, $b_{0·2}$ 155°.

R. W. Fleming

II. A PUNCHED-CARD SYSTEM OF INDEXING TO MEET SPECIAL REQUIREMENTS

By W. E. BATTEN, Ph.D., B.Sc., D.I.C., A.R.C.S., A.R.I.C.

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THIS system is essentially one for the small-scale operator. By 'small-scale' I do not mean 'un-busy', but intend solely to distinguish from the notional central bureaux where information on all subjects would be marshalled, sifted, and distributed. Such larger organizations would probably look for a greater degree of mechanization than I shall describe, although the principles underlying the system may possibly be capable of wider development.

My problem arose as a result of the Patent Office ceasing to publish their official classified abridgements at the beginning of the war. This cessation involved me in arranging for scrutiny of the new patents issuing and the preparation of abstracts therefrom. The abstracts were reproduced one on a page and bound up in appropriate volumes. As they accumulated, some form of index became imperative. Certain special features dictated the form of index required, viz.:

(*a*) The documents concerned were relatively few in number, but diverse in nature. Furthermore, each individual document contained useful facts relating to a number of different aspects of the total subject matter with which I was concerned.

(*b*) The number of angles from which the stored information was likely to be approached were many and varied. Furthermore, these angles were likely to increase and to change as time went on.

The above considerations ruled out any form of Kaiser Index. Multiplication of cards would have been enormous and so would cross-references. Large numbers of new cards dealing with old items would constantly have had to be added. A 'Cope-Chat' System was also unsuitable, as it could not provide for infinite extension in the number of aspects dealt with.

The present system was, therefore, evolved for the special purpose of providing for a relatively small number of documents, but for a relatively large number of changing-aspect classes.

The spadework of the system is fairly classical. First, a genealogical form of breakdown of the total subject-matter into aspect classes and sub-classes is worked out. A suitable decimal (or other notation) is then provided, so that each aspect class and sub-class receives a coded 'label'. In my case a simple decimal notation was used and, hence, each aspect was represented by a sequence of digits. This had certain advantages which will be mentioned later.

The abstractors, when making an abstract, also decided which of the aspects were touched by the reference in question. The code

numbers of the aspects touched were typed at the head of the abstract with the exception, however, that only the most specific aspect (out of a chain of dependent aspects) was typed. The staff then treated the abstract as if it also carried the codings of all the less specific aspects in the chain. Here the advantage of the decimal notation was evident. For example, whenever the coding 1·1123 was seen, it was understood that aspects 1·112, 1·11, 1·1 and 1 were also touched and the appropriate cards for the broader aspects received treatment automatically.

The steps so far described are, as stated, classical, but the steps which follow are a departure from precedent. Whereas punched-card systems have hitherto called for 'one card per item of information (or per document)', the present system calls for 'one card per aspect'. Hence, for each aspect in the table of classification we provided one card to be punched and each card was known by its appropriate decimal notation (e.g. Card 1·1123). The unpunched card was the same for all aspects and consisted essentially of a card divided up into 400 numbered small squares. (There was nothing significant in the number 400, it was mere convenience.) Each of these smaller squares represented (notionally) one item of information—in our case a patent specification. Imagine that the first specification in our collection had been coded by the abstractor as follows: 1·1123, 1·1112, 2·32. Then each of the cards provided for these aspects would be perforated in square 1 (as also would be the cards for 1·112, 1·11, 1·1, 1, 2·3, and 2) but no other cards would be punched in square 1. Similarly, the appropriate cards would be punched for the second specification and for the third and so on, until that batch of specifications had been dealt with. Eventually, 400 specifications would have been dealt with and hence all the small squares on that set of cards used up. At that stage a new volume of abstracts and a new set of cards would be commenced.

Considering now the first set of cards (dealing with 400 items), it will be clear that any given aspect card will be punched only in those squares which represent items touching that particular aspect. In carrying out a search, therefore, the aspect cards can be permuted and combined to meet the particular need of the moment. By selecting a small number of aspect cards (usually two, three, or four) and superimposing them one on top of the other it will be apparent that items touching *all* of the chosen aspects will appear as perforations right through *all* the selected cards. Items touching only *some* of the selected aspects will not show as through-perforations. The identifying numbers of the squares which show through-perforations are noted and these are the identifying numbers of the abstracts to be consulted. By choosing appropriate chains of aspects when drawing up the original table of classification (e.g. a chain or chains based on subject-matter, another based on authorship, and possibly one based on country of origin, &c.) it is possible to approximate closely to any field of search by selecting an appropriate combination of aspect cards. It is rarely possible to select a combination which is absolutely coterminous with the field of search, but this is immaterial as the primary object is to reduce

radically the number of references needing subsequent physical scrutiny. In other words, the system is intended to provide a fairly coarse sieve—but with the advantage that the shape of the mesh is not fixed.

Description of the operation on paper is as tedious to write as it must be to read. Physical operation of the system is not so, however. To select the aspect cards and obtain the significant abstracts from a series of 400 references is a matter of a few minutes. Admittedly, the operation has to be repeated for every series of 400 (we have twelve such series) and improvement in this respect would be welcome. Trials have been made with a standard Hollerith card (which will deal with 800 references on a much smaller card) and show considerable promise. In this connexion, I would emphasize that to use Hollerith cards in this particular way is an inversion of normal Hollerith practice. Normally, the Hollerith card is used in the form 'one card per item of information', and is machine-sorted. In the present case it would be used in the form 'one card per aspect' and the question of machine-sorting is unlikely to arise since there are only as many cards as aspects.

It will be appreciated that by adopting the 'one card per aspect' principle the problem of changing aspects is no longer a problem. Cards dealing with out-of-date aspects can be scrapped with impunity. New cards, dealing with new aspects, can be inserted at any time, even on retrospective material.

The fact that a set of aspect cards can deal only with a finite number of references is, of course, a fundamental limitation on the system and would probably rule it out where very large collections of references were involved. Nevertheless, some different mechanical form of the same principle might have wider application. For example, it would appear possible to replace the 'aspect cards' by 'aspect strips', the latter consisting of perforated ribbons wound on spools and adapted to be run through a scanning device whilst superimposed, the device noting and acting whenever superimposed perforations crossed its eye. Or the signalling means on the ribbon need not be a perforation but could be a mark on film, or an impulse on sound-track, or any similar device.

Leaving aside, however, further mechanical developments, the system as at present operating has been found over a period of seven years to be a convenient time-saver for carrying out patent searches in a technological field where the aspects are many, varied, and changing. It would appear to be equally adaptable to other forms of literature and in other fields of knowledge where the problem of multiplicity of aspects is met.

I wish to add that at the time when the preparation of this paper was decided upon I believed the system to be unknown except to my colleagues. I have since been told, however, that a somewhat similar system was evolved in France during the war. The French system is said to be named 'Desaubliaux', but I have no other information about it.

III. THE USE OF PUNCHED CARDS IN AMERICAN LIBRARIES

By

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Summary

THE passing years have witnessed not only a steady expansion in the size of collections of printed matter entrusted to the custodianship of librarians but also a demand for expansion and specialization of reference and bibliography services to a degree which could scarcely have been predicted twenty years ago. In coping with problems inherent in these trends an increasing number of librarians and information specialists are achieving notable successes by using punched cards and closely related mechanical and electronic devices. For convenience in discussion these applications of punched cards and related devices may be grouped under three headings, namely: (1) use of punched cards in connexion with the everyday tasks of library administration relating to acquisition, cataloguing, and circulating books; (2) use of punched cards as tools to prepare the conventional type of printed indexes, catalogues, &c., whose final use does not involve manipulation of punched cards; and (3) the contrasting direct use of files of punched cards to cope with problems involved in locating and correlating information, particularly scientific information. A final section of this paper reviews briefly various future possibilities of applications of mechanical and electronic devices in further development of documentation and information services.

Introduction

Space limitations necessarily imposed on this paper prevent us from describing—or even mentioning—every instance in which an American library or information bureau has achieved notable success in making use of punched-card techniques. It is our hope that this paper may present a reasonably accurate impression of the scope of usefulness of punched-card techniques already demonstrated in American libraries, even though every specific instance of use of punched cards cannot be reviewed. For excellent review papers see D. K. Maxfield, *Library Journal* (1946), vol. lxxi, pp. 902–5, 911; K. M. Stokes, ibid. (1947), vol. lxxii, pp. 871, 898–900, 911, 953–5, 966.

Before specific uses of punched cards are mentioned it may be

helpful to summarize those features of punched cards which make them adaptable to library work. The term 'punched card' is applied to a card on which numerical or alphabetical information may be represented by slots on the margin of the card (the Keysort, Cope-Chat, or E–Z Sort types of cards) or by holes punched over the area of the card (the Hollerith or Powers types of cards).

The basic feature of punched cards (this term will be used generically to designate both edge-notched and overall punched types) is their susceptibility to sorting operations directed either to any one or to a combination of notches or holes. This makes it possible to select the cards from any one of several different points of view. As a consequence, the possibility of replacing several files by one file is opened up. For example, as shown later, one may replace the conventional date due file and call number file by a single file by coding the date due on the cards so that these cards may be selected mechanically. By proper coding it is also possible mechanically to sort a file of punched cards into a predetermined order, e.g. into alphabetical sequence.

Another feature of punched cards which often enhances their usefulness is the fact that the notches or the columns of holes may be divided off into fields in each of which is coded a specific criterion, such as date due, borrower number, subject-matter of a book, &c. It is particularly important to note that subject-matter can be characterized by a number of independent criteria, on which sorting operations are based.

However, before sorting or other operations involving punched cards can be carried out, it is necessary to establish well-defined relationships between given individual bits of information or criteria characterizing information, on the one hand, and the presence of a given notch (Keysort, Cope-Chat, &c.) or of a given hole (Hollerith, Powers) in a card or of a combination of either several notches or several holes, on the other hand.

Establishing such relationships, usually spoken of as coding, is not always as simple as might appear at first glance. In the first place, one may encounter a real intellectual problem in discerning which criteria most effectively characterize the subject-matter under consideration. In this respect coding problems may be encountered which prove to be closely related to, but by no means identical with, corresponding problems involved in preparing indexes and devising systems of classification (J. W. Perry, 'Introductory Remarks to Symposium on Chemical Literature', 111th meeting of the American Chemical Society, Atlantic City, N.J., April 1947).

Once suitable criteria have been selected to characterize the bits of information under consideration, there still remains the question—more mechanical in nature—of how best to assign notches or holes to designate the various criteria selected. Without going into detail, suffice it to say that one may use a direct code in which a single hole is used to designate a specific single criterion, or, alternatively, a single criterion may be designated by one certain combination of notches or holes. This latter type of coding is sometimes termed 'numerical' or

'alphabetical'. As is perhaps obvious, coding based on permutations of a number of notches or holes to designate individual criteria permits establishment of a code embracing a much larger number of criteria than is the case with direct coding. Full realization of the possibilities inherent in various types of coding is impossible without careful mathematical analysis based on the theory of permutation and probability. It should be emphasized that this is true even of the apparently simple edge-notched type of cards (Keysort, Cope-Chat, E–Z Sort, &c.). This point is considered in some detail by the papers presented at the 112th meeting of the American Chemical Society in New York, September 15th to 19th, 1947 (C. N. Mooers, 'Putting Probability to Work in Punched Card Coding'; C. S. Wise, 'Generalized Punched Card Codes for Chemical Bibliographies').

Punched Cards in Library Administration

At the present time punched cards are being used in library administration for acquisition records, circulation records, registration of borrowers, and also for making reader interest surveys and similar statistical studies.

Alton H. Keller has described rather briefly the punched-card procedure used by the Library of Congress for their book record (*Library Journal* (1946), vol. lxxi, pp. 1785–6). Hollerith cards are used for this purpose. These cards are used for maintaining control accounts and statistics for the purchase of material for the Library's collections. Such information as order date, dealer, division to which the order is charged, subject, price, date of receipt, &c., is punched on the card. Since the card may be sorted on any of the fields, various types of studies, e.g., the number of books on order from a certain dealer, may be made very rapidly.

The University of Texas uses Hollerith cards for control of serials acquisition (Alexander Moffit, *College and Research Libraries* (1946), vol. vii, pp. 10–13). The information punched on the card is as follows: (1) Title (abbreviated to 43 letters and spaces because of limitations of the tabulator); (2) Expiration date or volume number; (3) Department benefited; (4) Account charged; (5) Source; (6) Country of publication; and (7) Location in Library. At the end of the year subscription costs and binding costs are punched on the cards. The cards are run through the sorter to find those that expire on a given date and they may be run through the tabulator at the end of the year to obtain annual reports.

At least one prominent American publisher of scientific books is using an edge-notched (Keysort) system to correlate the special fields of interests of libraries and individuals with new book offerings. (G. G. Hawley, Reinhold Publishing Co., private communication, June 1947.)

In the field of library administration, punched cards have probably been used more widely for simplifying circulation records than for any other purpose. Conventional American practice in keeping circulation records has been to file the book card by the call number and the call

slip by date due. Some libraries have maintained a third file in which the cards or slips were filed by borrower's name. Ralph H. Parker in 1936 described a method used at the University of Texas for combining the call number file and the date due file (*Library Journal* (1936), vol. lxi, pp. 903–5). Hollerith cards are used for this purpose. No permanent book card is used. The borrower writes his name, address, and number and the author, title, and call number of the book that he is borrowing on a Hollerith card. The card is punched with the date due and filed by call number. In this way a book on loan may be located in the usual way by call number and overdue books may be found by running the cards through a sorter. When an overdue notice is sent the borrower's number and an indication that a notice has been sent is punched in the card. When the book is returned the fine is punched on the card. At the end of the semester the charges against each borrower are mechanically tabulated.

A rather similar Hollerith-type system is used for circulation work at the University of Florida. This system has been described by E. Carl Pratt (*Library Journal* (1942), vol. lxvii, pp. 302–3).

Specially developed by Hollerith (International Business Machines) equipment for circulation records has been installed at the Montclair Public Library in Montclair, New Jersey, U.S.A. This equipment has been described in several articles by Margery Quigley. (See, for example, *Library Journal* (1941), vol. lxvi, pp. 1065–7; *American City* (1941), vol. lx, no. 5, pp. 101–2.) The system is different from those mentioned above in the method of producing the book record card and in the type of equipment used. The following description is taken from a printed sheet distributed to the patrons of Miss Quigley's library.

'In the first place, a unique card record is made for each borrower and for each book. Cards are perforated with punch holes which represent, in a code read only by the machines, the information by which the book or borrower is classified: in the case of the borrower, name, address, voting district, general age group, nationality, occupation, and so forth; in the case of the book, title, subject, date of publication, where obtained, and so forth. The sorting machine sorts the cards into classification groups. The holes in the cards govern the operation of the machine as the holes in a player piano roll govern the music.

'When a book is borrowed, the punched book card and the borrower's card are put side by side in a control machine in the library rotunda. A button is then pressed, whereupon a transaction card is produced in the library basement. This transaction card carries reproductions of the book card and borrower's card side by side on one card. It is the library's record of the borrowing.

'When a book is returned, the book card alone is placed in the control machine, another button is pressed, and the transaction card for the borrowing of this particular book is mechanically picked out from among those on file, and discharged.'

Some very interesting studies are being made from the card record described above. These have been reviewed by Felix E. Hirsch, Librarian at Bard College (*A.L.A. Bulletin* (1944), vol. xxxviii, pp. 291–4). Reader interest surveys may be made; statistical analyses of book

purchases for a year may be made, &c. Such surveys used to be very time-consuming and were seldom made because personnel was not available. However, with the use of the sorter and tabulator they may be made mechanically in a very short time. The expense is probably not great since they can be made during slack periods when the machines are not in use. The chief expense would be due to the fact that one would have to have a tabulator in addition to the punch and sorter.

Many libraries are using the less expensive Keysort card for their circulation records. In 1939, Frederick G. Kilgour described the system in use at Harvard (*Library Journal* (1939), vol. lxiv, pp. 131–3). A Keysort card is used for the call slip. The call number, author, and title of the book borrowed, and the borrower's name and number are written on the card. The date due is slotted on the margin of the card; only one slot is necessary for this purpose. The cards are filed by call number so that books on loan are located in the conventional manner. Overdue books are located by sorting the cards with the needle-like sorter. Mr. Kilgour makes the following statement with regard to the saving effected by the system.

'At Harvard the staff has remained the same size as under the triple-entry system. But the volume of circulation for the first six months during which the new method was used was 24·5 per cent. greater than that for the same period in 1937 when the previous high record had been set. Because of this increase, it would have been necessary to add at least four people to the Circulation Department to maintain the triple-entry method.'

A somewhat similar system is used at the Pennsylvania State College (reviewed in article by K. M. Stokes, loc. cit.). The essential difference between the two systems is that in the Pennsylvania system the additional holes around the margin of the card are used to code additional information such as location of books that are not on loan. This would include books at the bindery, books on reserve, &c.

One of the chief objections to the use of Keysort cards is that many established libraries with large collections feel that so much money has been put into the conventional book pocket cards that they cannot afford to scrap them. Columbia College Library has found a unique method of solving this difficulty (Rutherford D. Rodgers, *Library Journal* (1941), lxvi, pp. 1072–4). The conventional book pocket card is made into a marginal punched-card by filing the card in a pre-slotted pocket when the book is on loan. The pocket has eleven holes which may be slotted. Six of these holes are used to designate date due, and the remaining five are used to indicate the location of books that are not on the usual loan schedule, such as books at the bindery, faculty loans, &c. The pockets are stapled in such a way that the card does not go into the pocket far enough to interfere with the slot. After the cards are placed in the book pockets they are filed in a special drawer which acts as a sorter. The drawer is provided with special guides which correspond to the eleven holes in the pockets. A metal rod may be inserted through any one of these holes. If one wished to select all cards slotted in hole six, one would insert the rod through hole

six and invert the drawer. All cards slotted in this position would fall out. It was found that a saving of ten hours per month in checking overdue books was made with this system.

Punched Cards as Tools for Preparing Indexes, Catalogues, &c.

There is no need to discuss the importance of indexes, book catalogues, and compendia to reference librarians and bibliographers. Nor is it necessary to emphasize that much labour and expense are involved not only in producing such reference works but also in keeping them up to date. In other words, the preparation of such reference works requires both continual cumulation of various sorts of entries, e.g. references to current periodicals, and also rapid preparation of manuscript from the cumulated files.

Both aspects of the problem of preparing indexes, book catalogues, compendia, &c., appear capable of being attacked successfully with the aid of punched-card techniques. Perhaps the most impressive proof of this assertion has been furnished by recent work done by the Classification Division of the U.S. Patent Office, in expanding and revising the subject-index to the U.S. Patent Classification system. (S. W. Cochran, paper presented at 111th meeting of the American Chemical Society, Atlantic City, N.J., April 1947.) This subject-index served as a supplementary key to classified U.S. patents. Thus by consulting the subject-index it is possible to ascertain directly which patent classes and subclasses are concerned with a given subject, e.g. azo dyestuffs, instead of proceeding to locate the pertinent classes and subclasses by searching through the entire classification system. In order for the subject-index to serve its purpose of saving time when making searches of classified files of patents, it is essential that the index be kept up to date at all times. In other words, the usefulness of the index depends to a large degree on the ability to publish it in revised form at frequent intervals. This is no simple matter as progress in the useful arts not only compels revision of the patent classification scheme from time to time but also introduces new technical terms which must be included in the index.

Both the amount of clerical help needed to effect revision in the index and the cost of preparing manuscript for publication were greatly decreased by using IBM equipment (Hollerith type cards). Without going into details, the essential features of this application of punched cards might be summarized as follows. The individual line in the index is punched into individual Hollerith cards, which are cumulated into a file. Revisions in the index between its successive printed editions are effected by removing, inserting, or changing the relative position of cards as may be required for various alterations in the index.

By running the card file through a card-operated typewriter or a tabulator it is possible to obtain, at low cost, printed copy suitable for photo-offset or similar form of printing. Proof-reading difficulties are avoided by keeping duplicate sets of cards and checking one against the other by a special automatic device. The project has been in

operation long enough to demonstrate its overall efficiency and economy both with respect to clerical help and printing costs.

The Library of Congress has been experimenting with punched-card techniques as a means for preparing classified book catalogues and for compiling bibliographies. A paper will be published soon describing recent work along these lines at the Library of Congress (G. D. Gull, paper to be presented at the 112th meeting of the American Chemical Society, New York, September 1947).

A particularly impressive piece of work in applying both hand- and machine-sorted cards was recently reported by Lutz (A. W. Lutz, paper presented at 111th meeting of the American Chemical Society, Atlantic City, N.J., April 1947). The rapid entry of the Allied Armies into Germany during the closing days of the recent European war resulted in the capture of a very large number of scientific and technical documents containing information of interest to the U.S. Army Air Force. A preliminary, carefully executed screening operation eliminated material of little or no interest from the viewpoint of research and development. In this way, some 50,000 captured German reports containing much valuable information were collected. It was realized that the mere collection of these reports did not make the valuable information available for prosecution of the war against Japan. To this end the captured German documents were catalogued on Hollerith cards. These cards were used to compile a four-volume desk catalogue with a cumulated index. The cards also may be used for printing bibliographies. This is accomplished by mechanically selecting and arranging the cards and running them through a tabulator. The use of Keysort cards as aids for supervising and controlling stock in entry and orders for documents and also for co-ordinating an extensive translation programme are also worthy of special attention. It should be emphasized that the preparation of indexes, bibliographies, &c., was only one of several interlocking activities. As a consequence, the work at Wright Field should be kept in mind when reading the next section of this paper. The impressive pioneer work done at Wright Field not only rendered information contained in captured German documents quickly available for use but has furnished the U.S. Army Air Forces with a centre of scientific and technical information whose further development should provide a central clearing-house for information relating to aeronautics in its broadest sense.

In addition, the work at Wright Field has provided workers in other fields with an inspiring example of what can be accomplished by applying mechanized techniques to problems posed by scientific and technical literature.

Direct Use of Punched Cards to Locate and Correlate Information

This use of punched cards has proved to be of interest not only to reference librarians and to information officers connected with industrial concerns but also to non-librarians, be they scientists, technologists, historians. The use of punched cards for locating and correlating

information has become so widespread that we are forced to mention only a fraction of the work which has been done in this connexion. The use of edge-notched cards is particularly frequent in this field, although several larger organizations have used Hollerith (IBM) equipment.

Edge-notched (Keysort) cards have been used to index union contracts by the Industrial Relations Section of the California Institute of Technology (Mary Hoag, *Special Libraries* (1946), vol. xxxvii, pp. 106–10; May E. Jamieson, 'Methods of Indexing Provisions of Collective Agreements', *Bulletin* No. 3, 2nd ed., Industrial Relations Section, California Institute of Technology).

The use of mechanically sorted punched cards has been suggested by Murray G. Lawson of City College, New York, for historical research (paper presented at the annual meeting of the American Historical Association, New York, 28 December 1946).

There have been, of course, other American applications of punched cards to subject-matter and data outside the realm of science and technology. However, it is to these latter fields that punched cards have been applied with particularly interesting results.

Extensive use of punched-card methods in locating and correlating scientific literature has developed in America during the last decade. A patent filed in 1935 discussed the possible use of punched cards in connexion with scientific literature (W. Lasker, U.S. Patent 2084850). Although we are considering the applications of punched cards in the U.S., the use of punched cards by English metallurgists (E. G. West, *Transactions of the Institute of Welding* (1941), vol. iv, pp. 187–9; G. H. S. Price, *Metal Industry* (London), (1944), vol. lxiv, p. 354) might be mentioned as among the earliest instances of the use of edge-notched cards.

In the U.S., the pioneer use of edge-notched cards for scientific investigation appears to have been made in a study of dental caries by Cox and co-workers (G. J. Cox, M. L. Dodds, S. F. Dixon, and M. C. Matuschak, *Journal of Dental Research* (1939), vol. xviii, p. 469). In further papers, Cox, Casey, and Bailey have discussed general methods of using edge-notched cards, and also have described various special techniques of the authors' own devising designed to increase the effectiveness of this type of card. (G. J. Cox, C. F. Bailey, and R. S. Casey, *Chemical Engineering News* (1945), vol. xxiii, pp. 1623–6; R. S. Casey, C. F. Bailey, and G. J. Cox, *Journal of Chemical Education* (1946), vol. xxiii, pp. 495–9; C. F. Bailey, R. S. Casey, and G. J. Cox, *Science* (1946), vol. civ, p. 181.)

Wright has used punched cards to identify organic compounds from their infra-red spectra (N. Wright, *Infra-red Spectrometry*, Abstracts of the September 1944 meeting, American Chemical Society). The International Nickel Company has placed their file of over 30,000 corrosion data sheets on edge-notched cards. The data sheets were mounted using Kodak dry-mounting tissue. Coding on the cards permits correlation of alloy composition with corrosion-resistance properties thus facilitating development of special fields of use. (Lorraine Voigt, private communication, April 1947.)

Perhaps the most impressive use of punched cards by American scientists is in the field of correlation of chemical structure with biological and physiological effects. Frear and co-workers outlined a new classification system for chemical compounds. (D. E. H. Frear, E. J. Seiferle, and H. L. King, *Science* (1946), vol. civ (2695), pp. 177–8.) This system was used to correlate chemical structure with insecticide and fungicide activity (D. E. H. Frear and E. J. Seiferle, paper presented to the Association of Economic Entomologists at the Baltimore Meeting, November 1946). Parallel work by Wiselogle and co-workers was directed to developing correlations between the structure of organic compounds and their anti-malarial activity (*Journal of Chemical Education* (1946), vol. xxiii, pp. 375–91).

From such work in correlating facts concerning the physiological action of organic compounds came the impetus to establish the Chemical-Biological Co-ordination Centre under the aegis of the U.S. National Research Council. Much work has been done by this centre in developing and testing a punched-card code for organic compounds (J. H. Morgan and D. E. H. Frear, *Journal of Chemical Education* (1947), vol. xxiv, pp. 58–64). A detailed biological code is also being developed but has not yet been published so far as we are aware.

The development of the Chemical Biological Co-ordination Centre has now progressed well beyond the initial experimental stage. The work and experience of this Centre will be found to be well worthy of careful study on the part of persons contemplating the use of mechanical methods for coping with problems posed by the scientific literature.

In considering the problem of coding organic compounds, attention should be directed also to studies on the use of the Beilstein system as a basis for developing a code applicable to punched cards. (F. L. Taylor, paper presented at the 111th meeting of the American Chemical Society, Atlantic City, N.J., April 1947; Bradley Whitman and Temple Clayton, private communication, June 1947.) The importance of recent work by Dyson (*A New Notation and Enumeration System for Organic Compounds*, Longmans, Green & Co., London, 1947) needs no emphasis to a British audience.

Space is lacking to mention more than a few instances of the use of punched cards in locating and correlating scientific facts and data. Such use of punched cards has spread in the field of chemistry to such an extent that the American Chemical Society now has an active Punched-Card Committee with which each of the authors of this paper is associated in one capacity or another. This Committee is studying the application of mechanical and electronic devices to chemical literature problems. The Committee desires to establish contact with all persons interested in such problems and also with those persons who are interested in devices which have been so used or which appear capable of such use.

Although consideration of the use of punched-card machines for making mathematical computations lies outside the scope of this paper,

the possibility of using these machines for such purposes (W. J. Eckert, *Journal of Chemical Education* (1947), vol. xxiv, pp. 54–7, 74; G. W. King, *Journal of Chemical Education* (1947), vol. xxiv, pp. 61–70) should be mentioned, as it may be an important consideration in connexion with evaluating the advantages to be gained by having punched-card machines available for use in locating or correlating scientific and technical information.

Future Possibilities of Developing Punched-card Techniques

Thus far we have discussed punched-card methods. However, other devices have been, and are being, developed which appear capable of application to the problem of locating and correlating information. One such device, known as the 'Bush Rapid Selector', was set up and operated successfully at M.I.T. in 1940, but dismantled during the war years (J. H. Howard, private communication).

The 'Rapid Selector' made use of motion-picture film as the means for recording files of information. Each frame on the film was divided into two sections by a line running lengthwise down the centre of the film. In one section of each frame information was recorded by micro-photography; in the other section of the frame coding was recorded as transparent dots on an opaque background. On running the film through the 'Rapid Selector', light passing through the transparent spots on the coding section activated banks of photocells. When the pattern of photocells activated corresponded to the pattern of coding indicating a desired bit of information, a photoflash recorded the desired information on another roll of film which was subsequently removed from the machine and developed. The rate of scanning was 1000 items per second, hence the name 'Rapid Selector'.

As the recent war was drawing to a close, Vannevar Bush (Bush, *Atlantic Monthly* (1945), vol. clxxvi, pp. 101–8), in a frequently quoted paper, hinted at the possibility of developing even more versatile, faster-acting machines. It would appear likely that we are still far from realizing the possibilities implicit in the developments in electronics during the war years. The electronic devices of the not too distant future will almost certainly be capable of performing quite intricate comparing, sorting, and copying operations. It is not too much to expect that such machines will open up possibilities of removing much of the tedious drudgery from library work and thus permit reference librarians and others engaged in searching and correlating the literature to devote a larger proportion of their time to intellectual work.

However, it must not be forgotten that the mere design and construction of a machine capable of all sorts of miracles of high-speed selection, copying, &c., does not, of itself, constitute a solution of the problem. As Bush pointed out (loc. cit.), there is a need for getting away from 'the artificiality of systems of indexing' and the 'cumbersome' rules for tracking down information by following down classification systems 'from class to subclass'. Consideration of the problem reveals the necessity of developing a new approach not only to the theory of

indexing and classifying information but also to the problem of defining basic concepts and naming substances, e.g. organic compounds. It is from this point of view that one should judge the new notation for designating the structure of organic compounds recently proposed by Dyson (loc. cit.).

Mention of the Dyson notation may suffice to make another point, namely, the fact that the task of making our bewildering store of knowledge more readily accessible is indeed an enormous one requiring the best efforts not only of librarians but also of the keenest minds in the various fields of science. The task must be undertaken, however, if scientific effort is to avoid being bogged down in a morass of insufficiently organized research publications.

Conclusion

Pioneering work and widespread use has shown that punched-card techniques can serve as valuable tools not only to cope with problems of library administration but also to facilitate the location and correlation of scientific information. The accomplishments achieved to date with punched cards offer encouragement for attempting the task of planning and accomplishing a revolution in our methods for reviewing and transmitting the record of human knowledge, in general, and scientific knowledge, in particular.

DISCUSSION

Dr. W. L. Francis acted as Chairman in the absence of Mr. T. E. Callander who was prevented from being present through family illness.

Mr. B. Agard Evans opened the discussion. He said that he had studied Dr. Dyson's paper with the greatest interest. Like many classifications based on a breakdown of concrete conceptions his was extremely good when applied to subjects approached from the same aspect. What was not so clear, however, was the way in which to deal with general papers covering a range of material not broken down from the same approach or with papers of abstract or theoretical import. How would Dr. Dyson, for instance, codify such subjects as (1) chlorination of unsaturated hydrocarbons, (2) the labile hydrogen ion, or (3) application of punched cards to the classification of organic compounds?

Replying, Dr. Dyson said that he was only concerned with organic compounds and had not gone into the field of 'admirals' (the subject taken by Dr. Batten to illustrate his system) which related aspects to organic compounds. The chlorination of unsaturated hydrocarbons was not a difficult subject from that point of view.

Miss M. I. Wyatt asked if a punched-card system was suitable for locating a specific paper, e.g. Brown, 'Effect of cooking on the vitamin C content of cabbage', received about six months previously, or would the machine produce all the cards on this subject—possibly 200–300—which would then have to be gone through to find the required paper? Dr. Dyson replied that it would depend on how the index was applied. Great care had to be taken in applying a system and it was not really the right application to use it for answers to purely temporary questions.

Mr. R. H. Richens pointed out that inquiries relating to specific articles, cited by author's name, title, or subject, were now being answered at the Imperial Bureau of Plant Breeding and Genetics by means of punched cards extracted with a Powers-Samas Selective Sorter. Scientific papers relating to genetics were filed in duplicate, punched cards being prepared both for an author and subject file. Any inquiry therefore on the author, subject, provenance, or date of a genetical paper could usually be answered within five minutes.

Mr. J. C. W. de la Bere asked whether, as a generalization of 'Aspect-cards', Dr. Batten had considered the use of 'Teleprinter' punched tape. He thought that some system of synchronization would be needed, e.g. a code punching every tenth group of holes in a way analogous to the synchronizing signal sent in television.

Dr. Dyson remarked that the standard equipment used only capital letters, but an electronic typewriter had been adapted and it was hoped it would be ready next year.

Mr. B. W. S. Challans commented on Dr. Perry's paper. For the past twelve months, he said, he had been using a Hollerith punched-card system in connexion with the Technical Library at Admiralty Signal Establishment, one card being punched for each of some 2000 text-books held. The card recorded all the available information about each book including U.D.C. number, author, and title, the last two being recorded in alphabetical form by double-punching with the Hollerith Code.

It had been found desirable to produce a printed union catalogue of the libraries of the Establishment spread over some six extensions, and to revise this at six-monthly intervals. The original idea was to produce a stencil ready for printing by first sorting the cards in alphabetical order of author and then tabulating straight on to a stencil for direct reproduction (some 100 copies were required). The cards were then to be re-sorted in U.D.C. order and tabulated, thus giving both Author and Subject Indexes automatically. It should be added that only the text-book section of the library was intended to be dealt with in this way, no attempt being made at that stage to produce a printed catalogue of the much larger report section.

However, the normal Hollerith tabulating machine would cater for only twenty-two columns of alphabetical material, but a few had been made to deal with forty-four columns. Access was obtained to these machines, thus enabling 'author-plus-title' to consist of anything up to forty-four letters, including spaces, &c. Condensation was necessary in the case of long titles.

It was found that the ordinary tabulator could not be taken from routine service and quickly adapted for use with a stencil, and accordingly the method of using a lithographic ribbon printing on Duplimat Sheets was tried. Had this been successful it would have been possible to print the copies direct from the Duplimat Plate, but it was found that several troubles arose; firstly, the alphabetical characters produced were all upper case and no punctuation marks were available; secondly, the printing obtained from the tabulator taken straight out of routine service was found to be uneven in many cases, thus giving an imperfect plate. These disadvantages, combined with the restriction of length of 'author-plus-title', soon made it apparent that it was necessary to produce a tabulated list in draft form, this being worked up to full title, &c., in the library, and then typed on stencil in the ordinary way.

Due to the time taken in editing 'author-plus-title' to a suitable length and in punching this alphabetical information, it had been decided to dispense entirely with the alphabetical portion, the tabulation giving merely the serial numbers of the books in the correct orders for author index and subject index; duplicate copies were automatically suppressed and cross-references worked in during sorting and tabulating. The typist then obtained the information from the main card-index, only those cards of which the serial numbers appeared in the draft being included. This method had at least the advantage of automatic inclusion of all new titles in correct sequence, and removed the need for a great deal of compilation and checking by the library staff.

A great deal of help had been obtained in this work from the British Tabulating Machine Company (Hollerith), but there was probably little scope for the extension of punched-card technique for indexing in a library so small and specialized. No justification would exist for the keeping of machinery for this service alone, and this method would not have been used had the equipment not been available for other purposes.

No attempt had been made to use punched cards for the automatic sorting of information on any given subject, as the speaker was of the opinion that such sorting and selecting was better and more quickly carried out manually by reference to the index-cards, at all events in libraries of that size.

Dr. J. E. Holmstrom said that punched-card machinery had hitherto been used mainly for recording, sorting, and integrating quantities. What was now under

discussion was how best to exploit it for recording, sorting, and integrating information. This was a joint problem between the users and the mechanical experts in which the users' share must be that of devising suitable coding systems whereby any particular subject or aspect of information could be punched as a particular pattern of holes in a card.

One obvious way of so coding information was simply to take the appropriate U.D.C. number (or symbol from any other established classification) and punch it in the card exactly as if it were a number denoting a quantity. It did not follow, however, that that was the most rational way of tackling the job, for whatever merits—and they were many—could be claimed for the U.D.C., flexibility and adaptability to a rapidly developing subject-matter were not among them, and to make punched-card subject coding dependent on an existing system of classification would be needlessly to limit its potentialities.

Subject coding might be defined as the standardization of a symbol to represent each subject of reference, such a symbol being 'punchable' in a card. In only one respect—namely, that the meanings of the symbols must be mutually exclusive—was it the same problem as was involved in classification for filing purposes. The other requirement which symbols denoting the position of an item of information in a classified system must satisfy—namely, that the items so symbolized must be recoverable from a file through the symbols being arranged in numerical or alphabetical order—was not required when punched cards are used.

This fact opened up possibilities of which documentalists must have the imagination to take advantage, by not allowing thoughts on the problem of coding to be trammelled by a preoccupation hitherto with classification, which is a different problem.

It was helpful to recognize three possible kinds of subject symbols which could be punched on cards and which called for consideration, on their respective merits, in application to different kinds of material:

1. Aspectual, in which the code symbols represented different items in a classification of logical relationships such as the U.D.C.

2. Spatial, in which the code symbols represented positions or shapes. Examples of this were map co-ordinates, equations to mathematical curves (thus $y^2 = ax$ represented a parabola and nothing else), Dr. Dyson's system for symbolizing the arrangement of atoms in a complex molecule, and whatever system it was that Scotland Yard used for indexing fingerprints (a thing which it might pay to investigate in the expectation of finding useful analogies). A very difficult problem in this category was the indexing of photographs and imaginative drawings in an advertising office.

3. Verbal, as made possible by Dr. Samain's adaptation of the Hollerith for bibliographical purposes (described in his paper at the 17th conference of the F.I.D. in Berne, p. 67), in which the cards were punched from a typewriter-like keyboard which translated each letter of the alphabet directly into the appropriate pattern of holes. This enabled information to be recorded simply by 'typing' a telegraphically worded abstract of the document in question, and the sorting machine was so constructed that it could be set to pick out from the whole stock of cards all those which contained any required word or combination of words regardless of the sequence in which those words occurred on a particular card. It was necessary, however, to eliminate synonyms; for if the machine was set to pick out, for instance, all references to 'petrol', it would obviously take no account of any in which this was referred to as 'gasoline'. Nor would it even identify 'aluminium' with the American 'aluminum'. Consequently every word before being used must be checked or remembered from a pre-arranged list. This was not necessarily a disadvantage as it would help to standardize terminology and could be made very easy by indexing the approved words (and abbreviations for them) on Stripdex.

Mr. L. G. Patrick asked for information on the economic aspects of the machines. What were their initial and maintenance costs? At what level would their use be economic and would it be possible for them to be used for quite different purposes without drastic alteration?

Mr. J. P. Mandeville pointed out that the papers presented omitted any reference to one of the most important facilities offered by the punched-card system. They had

dealt with the application of the system to extracting and recording information, referring to the use of the facilities afforded by selective sorting and printing up by tabulating machines, but they had not mentioned the facility of replacing records in a precise order.

The collator or interpolater was a machine which offered this last facility and thereby got over one of the great disadvantages the punched-card system would seem to possess. This disadvantage had been well summed up by Dr. Urquhart of the Imperial Science Library recently when he wrote 'for an index of three million cards, mechanical sorting at 24,000 an hour is too slow'. (Report on the Aslib conference held on 24 June 1947, at the Royal Society, on uses of mechanization in library and technical information work.)

Here would appear to be an unfortunate situation. The very system that called for large-scale inquiries to render it worth while was held to be too slow for a really large-scale library.

This would be true if, in the first place, the machine could only deal with one inquiry at a time and would require resetting for each inquiry and, in the second place, would have to seek for the required card through large blocks of the 3-million card library.

The collator, however, allowed these difficulties to be overcome. In the first place a series of requests could be dealt with at once. Thus the requests for a session could be coded with the decimal code required, cards punched from these requests and sorted by hand to exact file order, and the whole batch inserted into the collator. Then, as the cards in the main file would always be replaced by the collator in exact order, only such batches of the main file as were likely to contain the cards called for by the requests would have to be put through the machine. The machine would then extract the cards required without disturbing the order of the file. At the end of the day such cards as had been finished with could be sorted by hand to their correct decimal order and merged into the main file in the course of an evening shift on the machine.

As exact order would be maintained throughout the main file, hand methods could be used alongside machine methods to deal with isolated requirements, the machine only being used for those inquiries giving rise to heavy 'traffic' in certain sections.

The rental of such a machine is approximately £300 a year, a figure not very different from the salary of a library assistant, but such a machine would have the capacity of examining 10,000–15,000 cards an hour, matching requirements coded to sixteen decimal places, extracting the cards where they matched, and afterwards merging the cards back in their correct places.

The speaker understood such a machine was to be on view at Canterbury Hall, and urged members of the Conference to inspect its work as offering perhaps the most hopeful of applications of mechanical aids to information work.

Dr. D. J. Urquhart drew attention to the fact that the Hollerith and Powers Companies had been experimenting with punched cards on which extracts from lists had been dry mounted. There appeared to be no difficulty in using such cards provided the dry mounting was clear of the 'throat' of the machine and holes were not made in the dry mounting. For a standard 80-column Hollerith Card this meant that a maximum of 35 columns could be occupied by the dry mounting.

In considering the use of punched-card equipment it was important to ensure that suitable equipment was designed for library purposes and that the limitations on library activities should not be conditioned by machines which had been designed primarily for accounting purposes.

A recent visit to a Hollerith school suggested that the 'collator', whilst it was designed primarily to deal with masses of cards which the other machines produced, might have been specifically designed for library work. Using such a machine it would be possible, for instance, to check lists of periodicals on punched cards against library holdings and to obtain in a separate pocket cards relating to periodicals which were not in the library.

Dr. W. O. Hassall remarked that in dealing with large collections of early manuscripts the type of question generally received involved a detailed study of individual manuscripts. Often particular points had to be examined which had only become

interesting as a result of current studies. These were not suitable for tabulation for examples showed that they could not have been anticipated by the cataloguer and therefore it seemed almost impossible to apply a punched-card system to their cataloguing.

MR. J. C. W. DE LA BERE sent in the following written contribution to the discussion after the Conference.

May I suggest a means whereby Dr. Batten's 'aspect card' method could be extended to meet the needs of a large library? I generalize the aspect-card (of Hollerith type, holding 800 spaces) to the 'aspect-drawer' (of 1500 cards and 1,200,000 spaces) and the 'aspect unit' of several drawers. I further postulate a machine into which can be fed a number of aspect-units and which will deliver in an appropriate form the numbers of all spaces common to all the aspects under consideration.

Certain practical points are: the use of x.y. rows of the card for relating corresponding cards of different aspect units; the output might consist of a (small) group of cards each bearing a card indentification punching (as on the aspect cards) and a punching for the spaces common to all the aspects; it would not usually be worth employing mechanical interpretation for the data so obtained; again suppose a machine capable of handling four aspect-units and requirement for material on the 'inter-sections' of five aspects, by first comparing aspects 1, 2, 3, and 4 then aspects 2, 3, 4, and 5 the material should be so limited that manual comparison will again suffice to complete the elimination.

The manifest disadvantage of this system lies in the immense number of aspects possible; rough counts of U.D.C. schedules give the following figures:

		From Schedule	*From Index*
51	Mathematics . .	2500	
52	Astronomy, &c. . .	1000	
53	Physics . . .	2500	
	Total 51/53 . .	6000	1050
540/7	Chemistry . . .	2600	—
621·3	Electrical Engineering .	2700	1300
666	Glass, &c. . . .	830	450
669	Metallurgy . .	1000	—

For a library limited to one subject-group and its ancillaries the problems do not seem insuperable.

DEMONSTRATION OF PUNCHED-CARD APPARATUS

THE BRITISH TABULATING MACHINE CO. LTD. (HOLLERITH ACCOUNTING MACHINES)

Key Punch

THIS instrument is used for the perforation of cards. Its operation is comparable with that of the typewriter in that work commences at the left of the card, and each time a key is depressed a hole is punched and the card moved one column-space to the left, bringing the next column into the punching position. Ten of these keys are respectively numbered 0 to 9 and two others enable holes to be punched in positions in the card above that of the '0'. There are also provided a space key for skipping column by column where no punching is desired, and a release key which, as its name implies, releases the card at any point at which punching ceases.

Verifying Key Punch

The function of this machine is to check the accuracy of the holes already punched in a card.

Punched cards, with the records from which they have been transcribed, are passed to a second operator who in effect re-punches the cards. Whenever a figure key is depressed which differs from the one used by the original punch operator—in other words, when there is no hole to meet the key pressed by the verifier—the card refuses to feed forward, thus calling attention to the mistake. The punched holes are invisible to the verifier operator.

Collating Machine

This machine is used for the merging or matching of packs of cards. It can be used, for example, for inserting name and address cards with detail cards and for re-filing the former after use. One run through the machine accomplishes either of these operations. For library work, the machine will select cards punched with a particular code descriptive of an aspect or notion from a large pack of library cards; it will also automatically file back into their proper order the selected cards after reference has been made to them.

POWERS-SAMAS ACCOUNTING MACHINES LTD.

The equipment demonstrated employs a standard card containing 65 columns each with 12 punching positions, giving a total of 780 positions in all. The recording capacity of this card can be made equivalent to 130 columns by double-punching, i.e. the perforation of two holes per column instead of one.

Hand Punch

This machine is used for manual perforation of the card. Operation is similar to that of the typewriter but owing to the small number of

keys the speed of recording is considerably higher. The Powers card is inserted in the carriage which moves to the left, column by column, as the card is punched. The keys of the punch are numbered from 0 to 12, missing out the 10.

Automatic Key Punch

With this machine the depression of the keys is the only manual operation, the feeding, punching, and ejection of the cards being entirely automatic. The depression of each key does not perforate the card, but 'sets up' the individual punch mechanisms for each column and during this process corrections may be made if required. On depression of the 'punch' key the card is automatically fed through the machine, punched, and ejected.

A feature of this punch is its method of gang-punching, which enables information common to a quantity of cards to be automatically punched in all of them after having been set up only once. Another feature is the repeat-punching facility which permits of rapid automatic punching of quantities of similar cards.

Automatic Sorter

This machine classifies punched cards and groups them in any required order at a speed of 24,000 card-passages per hour. The cards are placed in batches in the magazine and a pointer is set against the column on which the sorting operation is to take place. The machine is then set in motion and each card passes automatically into the numbered box corresponding to the hole punched in the column. The machine can, when required, be fitted with counters which automatically count the cards falling into each receiving-box and also provide totals of each batch of cards sorted and a grand total of all cards passing through the machine. At the same speed the machine will also select any given cards from the batch without disturbing the sequence of the rest of the batch.

C. W. Cave & Co. Ltd.

Findex Punched-card System

The equipment of a Findex installation consists of a sorting unit mounted on a cradle, complete with selecting rods, perforated cards, a slotting punch, and storage cabinets. A specially perforated card is used; each pair of adjacent holes in vertical relation constitutes a Findex 'position', which latter are numbered consecutively from 1 up, beginning at the lower left-hand corner. To each position is assigned a division of a pre-arranged classification scheme. Each card is prepared for mechanical selection by converting the two holes of a specific position into a slot by means of the punch. When classifications are required, the cards, stored in the cabinets, each drawer of which has two compartments each capable of holding 400 cards, are taken out of the appropriate drawers and placed in the sorter which can also hold

800 cards in two compartments. The operator then pushes a rod through a numbered hole in the front of the sorter and through the holes in the cards, pivots the sorter upside-down on its cradle, and the cards which have been pre-slotted to answer to the classification required will drop one-half inch; one more rod is now inserted to lock the dropped cards, the sorter is reversed, and every card required is offset ready for reference. Withdrawing the rods causes the cards to drop into their normal position. If more than one classification is required at the same time one rod is inserted for each classification and the number which can be selected in one operation is only limited by the number of rods used.

The Copeland-Chatterson Co. Ltd. ('Cope-Chat')

'Paramount' Punched-card System

This system is operated entirely by hand and the only 'machinery' required consists of a pair of nippers and a needle. Sometimes known as the edge-notched method its main principle consists in the sorting of slips, cards, and forms of any size by needling slots and holes punched around their edges. Each hole may be considered as representing a particular number, fact, or aspect. Where particular holes correspond to the entries on the card the holes are slotted out. If the variety of detail is considerable, codes may be used to keep the number of holes to a convenient limit. Sorting is carried out by passing needles through the holes representing the information required and, where these have been slotted, the required cards will drop. Speeds up to 60,000 cards per hour are quite possible.

Messrs. Copeland-Chatterson exhibited a number of different cards and forms actually used by a wide variety of organizations and government departments. They also showed the hand punch, the key punch, and a gang slotter. These last two are simple desk machines for dealing with large numbers of cards.

FORMAT AND EFFICIENCY

I. THE STYLE AND MAKE-UP OF BRITISH PERIODICALS

By V. E. PARKE, D.Sc.

Intelligence Officer, I.C.I. Ltd. Billingham Division.

MANY changes, some for better and some for worse, were made in British periodicals by war conditions, and the end of the period of austerity is not yet. But some day better supply of labour and materials will permit of return to earlier forms. The enforced changes should therefore be carefully reviewed so that those 'for the better' can be retained while those 'for the worse' are corrected.

It was with these ideas in mind that the Billingham library staff collated their recent experience and worked out the suggestions here given, which are based on the handling of about 400 periodicals in the chemical, engineering, and allied fields. When the work was nearly completed, we found Dr. Bonser's paper to the 1929 Aslib Conference on 'The Ideal Form in which a Journal should be produced, from the Librarian's Point of View' (*Report*, pp. 63–70). We decided that the gap of eighteen years was wide enough to justify presentation of our results, especially as the failings which he brought out so clearly were still in need of correction. We are greatly in Dr. Bonser's debt, therefore, for the encouragement and guidance we have received from his paper and may perhaps hope that this second attack on the problem will have some useful result. It should be made quite clear, of course, that we have not made exhaustive lists even in our restricted field; the periodicals actually named have been picked out more or less at random and are not exclusive examples of either good or bad points. Indeed, we strongly recommend that Dr. Bonser's paper be re-read, for he brings out important points and striking examples not given herein.

Size

A search through scientific or technical literature brings the wide variation in page size sharply to mind. It extends all the way from, say, the British Standards which are less than 9 in. by 6, to the engineering journals which are about 14 in. by 10. There is, of course, a certain amount of probably accidental standardization. Thus a number of the pure science periodicals are of similar size. Four taken at random, *Transactions of the Faraday Society*, *Philosophical Magazine*, *Proceedings of the Royal Society*, and *Journal of the Chemical Society*, are from 9 to $9\frac{3}{4}$ in. long and from 6 to $7\frac{1}{2}$ in. broad. Similarly, a group of six monthly technical periodicals, *Journal of the Iron and Steel Institute*, *Iron and Steel*, *Monthly Digest of Statistics*, *Journal of the Institute of Fuel*, *Journal of the Society of Chemical Industry*, *Gas Journal*, and *Gas Times*, are from 11 to $11\frac{3}{4}$ in. long and all $8\frac{1}{2}$ in. broad. Nevertheless, there remains overall

a degree of variation which, while it may make little inconvenience for the individual reader, makes a great deal for the technical librarian and information officer. When the periodicals arrive, accessioning and handling in the office are slowed down; on circulation the little ones are apt to be lost among the big ones and, in storage, whether as unbound numbers or bound volumes, shelf space is very uneconomically used. Clearly all this can be very serious for a large organization which has to take several hundred periodicals, circulate them to ten or more readers apiece, and then store them for a few years or bind them for permanent retention.

Little in the way of deliberate standardization even of page size has been attempted until very recently, but this is clearly an appropriate time to consider it. For not a few periodicals have had to reduce drastically during the war and may now be looking forward to a return to something like previous practice. Two attempts have come to our notice: a British Standard in a very special field and a print by the Institute of Incorporated Practitioners in Advertising, Russell Square, entitled, *Standardisation of Type Area Sizes for Trade and Technical Journals* and published in May 1946. The latter is of much wider application than the former and though it does not deal directly with page size and does not cover pure science it is very well worth our attention. It is based upon an investigation into the effect of variable type area on the preparation of advertising matter and it quotes some examples of the difficulties. Thus a maker of chains had to deal with 18 different type areas among 27 periodicals in which he advertised; a maker of refrigerating plant 26 sizes among 35; a maker of water fittings 38 sizes among 72 and a maker of valves 15 sizes out of 23. These data give incidentally some indication of the inconvenience variable page size imposes on library and information staffs.

Fortunately the standard recommended, 10 by 7 in., is 'identical with that already most popular among publishers and most generally adopted abroad' (see print above-mentioned). Other sizes in proportion are recommended as alternatives, 11½ by 8 in. for larger periodicals and 9 by 6¼ in. for smaller. For pure science periodicals which contain few advertisements a still smaller proportionate size might perhaps be acceptable, namely, 7 by 4⅞ in. These figures refer, of course, to type area sizes, and allowances for margins must be added to obtain page sizes. Even apart from the present stringency taste and convenience will make the allowances vary among periodicals, but fortunately it is not necessary to propose strict uniformity for the present purpose. It has been assumed, therefore, that top and bottom margins will require 1½ to 2 in. and side margins 1 to 1½ in. The sizes then become:

Standard. . .	11½ to 12 in.	by 8 to 8½ in.
Larger . . .	13 „ 13½ „	9 „ 9½ „
Smaller . . .	10½ „ 11 „	7¼ „ 7¾ „
Pure science . .	8½ „ 9 „	6 „ 6½ „

As soon as these sizes are set out it becomes clear that the whole field

is full of uncertainties and approximations, but the Practitioners in Advertising have made a thorough inquiry into their problem and found strong reasons for standardization, namely, the cost of preparing advertisements in varying and unrelated sizes and the necessity to make British periodicals as attractive as their foreign counterparts. They are not seeking to be too rigid either, as is shown by their recommendation of a popular size and alternatives. Moreover, for many periodicals the changes needed will be small and for others large changes are already in contemplation and recommendations may be acceptable. It may be hoped also that where war-time changes have been towards the standards mentioned, for example in *The Engineer* and *The Times Review of Industry*, departures will not again be made. It seems wise, therefore, that we here should give the scheme all the support we can. Its success will ease our own difficulties.

One caution may be entered, however. Changes, even only little ones, should always be made at the beginning of a volume. One or two awful war-time cases will leap to many minds; the *Gas World* dropped from 12 by 9 in. to 11 by 8 in. for the fourth issue of the second volume of 1941, leaving to the unfortunate libraries which bound it the pitiable choice between a whole volume containing two different sizes of page and a partial volume of which three issues had been bound away from their index at the end of the previous one. The second drop, to $8\frac{1}{2}$ by $5\frac{1}{2}$ in., was made at the beginning of a volume, so perhaps we may hope that in the less hectic conditions of peace this more convenient practice will be universally followed.

As the years go by the bound volumes of most periodicals increase in size until an awkward thickness is reached. Then the yearly volume may be issued in two six-monthly 'parts' or the page size may be increased. The Chemical Society adopted first the one and then (after a long interval) the other. Even so the changes are rarely made soon enough to prevent the issue of a number of ungainly volumes which are difficult to keep open on a desk and, what is as important these days, difficult to set up for photo-copying. Flow of publishable matter is not perhaps easy to control, so that volumes keep a constant size, but from the librarian's viewpoint there is plenty of latitude. He would be very glad if thickness could be kept anywhere between one and a half and three inches, and would even put two exceptionally thin volumes into a single cover if that would help, rather than have the ungainly ones of the past. It can be argued that he can bind a 'volume' in as many 'parts' as he likes, but unless he fits in with the publisher he may have to do without effective title-pages for some of his 'parts'. Indeed, he might like to go even farther and ask for the six-monthly 'parts' to be made at once into separate volumes with index as well as title-page. He would ask, too, that all periodicals should begin their volumes with calendar years or standard parts of years, such as halves and quarters, which would much improve the control of ordering and circulating. Volume numbers, incidentally, should be in arabic; roman numerals are too confusing in long runs.

Dating and Paging

Periodicals taken by a large works library include newspapers, transactions of learned societies, abstract journals, and a very large number of intermediate types. In those which contain news and little else, and which are only of passing interest, the established practices of dating and paging raise no problems, but for those which are to be stored for some years or bound for permanent retention the librarian would like to suggest a number of dating and paging rules.

Advertisements, except perhaps a few relating to new developments, are rarely of importance to the text and are usually discarded before binding. But when they are paged with the text the bound volume will have gaps in the page numbers which are apt to suggest gaps in the text itself. Advertisements should thus have a page number sequence of their own, preferably in roman numerals or with a letter prefix which will make recognition easy. It is desirable to commence numbering advertisement pages with each issue, while numbering pages of text continuously throughout each volume. This last point is worth emphasizing for itself; for a volume which begins every issue with page 1 has an inconvenient index, is 'strange' to handle, and references to articles are unnecessarily clumsy.

Further, advertisements should not be scattered through the text but collected at beginning and end of the issues, or, if that is a really unattainable ideal, they should be easily removable, being distinguished by their numbers in the advertisement sequence. It is not really an answer to this point to put back to back a page of text numbered in one sequence and a page of advertisement numbered in another, as is done by very well-known periodicals in the chemical and engineering trades. Advertisements should not be on the same page as, nor on the back of, textual material.

The attitude of the librarian to advertisements can be simply summarized in the request that his instruction to a binder to remove all advertising matter should be easy to obey and should give a good book. The arrangements suggested would simplify the removal of advertisements and would not seriously interfere with their retention if that was desired.

Other separate page sequences are required for news items of technical societies ('Proceedings'), for abstracts and for supplements, which appear in the issues but are scrapped or kept separate when binding. There is nothing new or revolutionary in this, for several journals already do all that is required, notably the *Journal of the Textile Institute*, which distinguishes Proceedings, Transactions, and Abstracts by their initials before the respective page numbers, and the *Journal of the Institute of Metals* which numbers news and announcements along with advertisements, in roman, and heads up the pages of text and abstracts with different titles as well as different numbers.

Along with the page numbers on the top outer corners it is common to give the issue date on the inner corners, showing it twice, on the left- and right-hand pages. An improvement has begun to appear in some

cases, the volume and issue numbers being shown with the dates or instead of one of them.

Three examples chosen at random are:

Left-hand page	*Right-hand page*
482 *Petroleum Times* May 24, 1947	May 24, 1947 *Petroleum Times* 483
198 *Bulletin of Hygiene* March, 1947	Vol. 22, No. 3 *Industrial Hygiene* 199
370 *Nature* March 15, 1947 Vol. 199	No. 4037 March 15, 1947 *Nature* 371

A less common practice is to give some or all of these data at the foot of the pages. While no objection can be taken to this, uniformity is preferable and surely not difficult.

Periodicals which give special importance to their 'news' items are apt to have an irritating habit which can fairly be noted in this connexion, the carrying of the last few paragraphs of an article to an odd corner near the end of an issue and finishing the first part with 'continued on p. . . .'. It seems that a choice is being made between a top-of-the-page headline which may catch the eye of a reader who 'runs' and a completed article which will be easier for reference by one who will take time to digest. No doubt the habit is suitable for news, but periodicals which aspire to more serious articles likely to be wanted for retention or binding may be asked to think more of their serious readers. Nor does there seem much to be lost in any case, for some, like the *Chemical Trade Journal*, are able to finish most of their important articles at the foot of a column, and others, like the *Chemical Age*, can put striking headlines at any part of the page.

Contents Lists and Indexes

Single issues have contents lists; whole volumes have indexes and often consolidated contents lists. Indexes are included on binding and contents lists (at least of separate issues) often scrapped, though sometimes when the index is not forthcoming a collection of contents lists has to serve the turn.

Besides the usual list of titles and their page numbers, societies' journals give authors in their contents lists. There does not seem a decisive reason to put authors' names before their subjects or vice versa, but the list should be in the order of the papers with page numbers at the right-hand side, and not in any alphabetical order. Contents lists are usually short enough not to need alphabetical arrangement; it is better to spend the effort in doing the indexes well. But many other points make up the value of a good contents list. The full title of the periodical (including, where appropriate, the particulars of the society), the publisher's name, address and telephone number, publication intervals, subscription and postal rates, volume number, issue number, date, editor's name, address and telephone number if not the same as the publisher's, are all useful and often required at quite short notice for urgent inquiries; the contents list is the natural place to look for them. When, as is usually the case, the contents list is not on the front page, it is very useful to have all these details repeated there along

with the display title. A very great amount of work can be saved at the receiving (accessioning) and abstracting tables of a big library if the essential details can be got without opening the periodicals. A feature included by *The Engineer* promises to be of much use for information work, namely, the provision in a standard place of a selected list of the more important items set out so as to allow of direct pasting on to index cards. All regular items should be mentioned in the contents list, such as forthcoming events, market prices, abstracts, technical data pages, home and foreign notes, company reports, patents, and (very important) the advertisers' index. Help in finding the advertisers' index in current issues, even when advertisements are taken out before binding, is often very valuable in a search for the maker of some urgently wanted item.

But the place of the contents list is almost as important as its completeness. Above all things it should be in a constant place in every issue and easily found. The variety at present shown is amazing: just inside the front cover; two pages before the beginning of the text; part of the first page of text; right in the middle of the issue before the editorial; at the end of the editorial; tucked inconspicuously at the foot of a column just before a central coloured 4-page sheet of advertisements and text results; just inside the back cover; outside the back cover. Is it really too much to hope that this bewildering state of affairs will be remedied? There may not be any single 'best place' but it should be possible to standardize on the first page of text, either part of it, facing it, or just before it.

Almost as much bewilderment attaches to a search for the advertisers' index; surely its place also could be standardized. This really valuable part of the technical news press deserves to be well handled.

For lack of one we had recently to search page by page through a whole year of a famous periodical to locate a notice of an instrument we wanted to study. The most convenient place would seem to be just inside front or back cover, well away from the contents list.

Indexes for completed volumes are essential. For small volumes it is possible to have subject and author indexes combined, but this is not satisfactory for volumes of any size. They should be made by experienced indexers, too, for there are many pitfalls not only in cross-referencing but even in plain alphabetizing, and many indexes are still scrappy. It is much to be hoped that we have seen the last of the troublesome war-time practice of requiring special application to be made for an index. Libraries should not be permanently penalized for missing a small notice appearing at an unpredictable time.

Indexes should preferably be supplied loose so that they can be put aside safely while the issues are on circulation, and the front cover of the issue should be conspicuously marked even when, as happens all too rarely, the index is supplied with the last issue of the volume. Even the position of the index varies in some periodicals. Sometimes it will be paged in roman attached to a title-page and sometimes in arabic to follow the end of the text. Consistency is much to be desired and the

preferable arrangement would seem to be a consolidated contents list before the text and index at the end.

Front Covers, Titles, and Spines

Front covers are by common consent the most glorious pages of many periodicals. An envious glance must often have been cast on the luxury of the covers that come to us from the West, even if a second one reminded the librarian of their disadvantages. Many of the gay covers are brittle and cannot bear much handling, especially during circulation, becoming detached in the process, and risking the loss of the text. Strong, light-coloured, not too glossy covers, firmly attached, are the best for our purposes, and that should leave ample scope for all the brightness and beauty that are desired. Some periodicals, particularly weeklies, like the *Board of Trade Journal* and the *Economist*, begin their text on the front page. Circulation slips, unless put on with the utmost care, are then apt to be pasted over the most interesting articles. It would be a great help if they could make the left-hand margin of the front page broad, or perhaps rearrange their page so that the left-hand column contained matter that would suffer less from being covered up.

Suggestions have already been given as to the contents of front covers, but the titles themselves produce difficulties. A periodical should select a title long enough to show without ambiguity the kind of publication and its field, and short enough to be readily quoted and abbreviated for reference. Many Research Associations might improve their choices. They tend to long titles, often beginning with some general word unduly emphasized by size of lettering. Thus *Review of Current Literature relating to the Paint, Colour, Varnish and Allied Industries* would be easier to handle if it were called *Paint Abstracts*. The rest of the information in the present title could be presented in a sub-title, where it would be available for readers who required close examination of the work, but would leave the short title for the many who need to know of developments in the paint field without following them in great detail.

A title once chosen should be kept unchanged for as long as ever possible and when a change has to be made, owing, for example, to absorption of one periodical by another, the final title and the suppressed one should be clearly distinguished. It takes an effort monthly renewed to decide from the title-page whether *Paint Manufacture* is incorporating *Paint* or vice versa. A glance at the first page of the text clears the matter up, of course, but it should be possible to save the effort. Changes of title, like changes of size, should be made only at the beginning of volumes, and after a reasonable time all the superseded titles should be removed, leaving the current one clear and striking.

Abbreviated titles for reference purposes are by no means standardized. Thus the *Chemical Trade Journal* has its title shortened to *Chem. Trade J.*, *Chem. Tr. J.*, and *C.T.J.* The *World List of Scientific Periodicals* has done something towards standardization but not nearly enough, and it would be useful if each periodical which expects references to be

made to its articles would give an approved abbreviated title on title-page or contents list. We would respectfully suggest, however, that 'J.' is not really enough for the *Journal of the Chemical Society*. It is not always self-explanatory in references inside the *Journal* and it is certainly ambiguous outside.

When spines are wide enough they can carry much useful matter, and it is a great help if they do. Title (shortened if necessary), date of issue, volume and part numbers, pages of text and abstracts (if any) are welcome.

Miscellaneous

A few points may be dealt with quickly under this heading. Wherever one periodical publishes an item which may make a reader want to refer back to an original, such as a short report of a paper, an abstract, a book review, a comment on an official pamphlet, a list of acquisitions to a library, or the like, it should give full details so as to allow the reference to be made with certainty. For articles, author and title are wanted, together with name (or satisfactory abbreviation) of periodical, date, volume number, part number (if any) and page, and for books, author, title, publisher, edition, and date. It is true that full references are redundant in some points, but errors in quoting are so easily made that the more clues the surer the reference.

In line with improvement of references a new practice of the Faraday Society is to be commended. It now publishes summaries of its papers in French and German as well as in English. In due time perhaps Russian will be added, but better still would be the spread of the practice through the science periodicals.

Errata are a nuisance. It is not nice for a publisher to admit having made them, nor for a librarian to go back and correct them. But they are really remarkably few and no one need be ashamed. The corrections should be quite easy to find and not tucked away in some obscure corner where many readers will miss them.

The U.D.C. is coming steadily more into use, but skill in using it is not always as high as desirable. Librarians and information officers would find it valuable if the number not only for the main subject but also of the principal secondary subjects were given at the head of every important paper.

Conclusion

Returning again to Dr. Bonser's paper of 1929 we are rather disappointed that our suggestions for improvement should after nearly twenty years have to follow his so closely, but perhaps we may have brought to its proper emphasis again the fundamental point he makes. Librarians and information officers have an important and a growing part in the process of spreading and applying the news and knowledge that the press publishes. Their experience therefore should allow them to make helpful suggestions towards it. In this paper the underlying fact is that a large proportion of the periodicals already carries out the

recommended practices, some in very large measure. What is asked for is that all should carry out the remainder in so far as they apply. The attention of the 'news' periodicals is particularly called to this. If they would like the matter they publish to be kept for permanent reference, they will help librarians and information officers greatly to that end by carrying out the suggestions herein made. The result can only be that press, librarians, and information officers will increase their services to the new drive for prosperity which is of such outstanding importance to us all.

SUMMARY

The suggestions made above are:

Size

The recommendations of the Institute of Incorporated Practitioners in Advertising should be adopted, which lead to the following paper sizes:

Standard	.	.	11½ to 12	in. by	8	to 8½	in.
Larger	.	.	13 „ 13½	„	9	„ 9½	„
Smaller	.	.	10½ „ 11	„	7¼	„ 7⅝	„
Pure science	.	.	8½ „ 9	„	6	„ 6½	„

Changes to be made at beginning of a volume.

Volumes to be 1½ to 3 in. thick, half-yearly or quarterly volumes being issued to secure this.

Volume numbers in arabic.

Dating and Paging

Advertisements, proceedings, abstracts, supplements, and text to be paged separately for separate binding or scrapping.

Advertisements to be kept quite clear of text, &c.

Volume and issue numbers to be given at the head of pages.

Breaking up of articles in issues to cease.

Contents Lists and Indexes

General items required on contents list are: full title of periodical (including, where appropriate, the particulars of the society), the publisher's name, address, and telephone number, publication intervals, subscription and postal rates, volume number, issue number, date, editor's name, address, and telephone number, if not the same as the publisher's. These should be repeated on the front page.

All regular features to be noted in the contents list.

Place of contents list to be on or near first page of text.

Advertisers' index to be provided and put in a constant position, just inside front or back cover.

Author and subject indexes to be separate except in small volumes and to be supplied automatically. Index issues to be clearly marked. Indexes to be paged so as to come at end of text.

Front Covers, Titles, and Spines

Front covers should be light-coloured (or white), strong, not very glossy, and firmly attached.

Periodicals with text on the front page should have arrangements for affixing routing slips, e.g. wide margins.

Titles should be clear, short, and easily abbreviated; approved abbreviations should be given.

Once chosen, titles should be kept unchanged as long as possible.

Changes of title should be made only at beginning of volumes.

Spines should show title (or abbreviation), date, volume number, part and page numbers of text, and abstracts.

Miscellaneous

All references should be as full as possible.

Summaries of important scientific items in two or more foreign languages are recommended.

Errata should be easy to find.

U.D.C. numbers should be given for important articles.

II. A LIBRARIAN'S COMMENTS ON BRITISH PERIODICALS

By L. G. PATRICK, F.L.A.

Librarian, British Non-ferrous Metals Research Association

Introduction

THE librarian's approach to periodicals is as follows:

1. Purchase.
2. Reception.
3. Library use.
4. Storage and binding.

The following remarks are therefore in that order.

Purchase

I wish here only to stress the advantage to the librarian when the full details required for ordering a periodical are found in each issue in some obvious place. If a standard position could be agreed on it would be useful.

Reception

It is helpful when:

(*a*) Envelopes or wrappers bear the printed name of the periodical enclosed. This facilitates the early-morning sorting of the mail.

(*b*) Periodicals sent wrapped in tube form have an effective tear slip along the wrapper.

(*c*) All details required for recording the receipt of individual issues are given on the front cover and/or the spine. These are normally: Name, date of issue, volume and part number.

(*d*) 'Index Number' is printed on the front cover of the issue with which the index is sent.

(*e*) The name of the receiving library can be stamped prominently and clearly on the front cover. One periodical used to have an all-black cover, relieved by white lettering, on which it was impossible usefully to stamp a library's name. Colours other than black can also effectively absorb a rubber or metal stamp impression so that it cannot be seen.

(*f*) The cover is able to hold a gummed routing slip. Glossy covers fail in this respect.

Library Use

Titles of periodicals are often spoken and written by the librarian and he has a strong preference for those that are brief and apt. Here I

wish to engage in a gentle and friendly spar with Aslib itself. Dr. W. Bonser in his paper[1] to an earlier Aslib Conference when dealing with titles which are unnecessarily cumbersome and redundant says:

'"Journal of Proceedings" is also redundant; either "Journal" or "Proceedings" is sufficient.'

The full reference to the publication in which that statement is contained is *Report of Proceedings of the Sixth Conference of the Association of Special Libraries and Information Bureaux.* Aslib has been commendably consistent in the use of this title since the first conference in 1924 up to that of last year; has the time not come, however, when it should consider using a shorter name for this annual publication? The words 'Report of' could be omitted and it might be better to go farther and call it *Proceedings of Aslib* or perhaps preferably *Aslib Proceedings.* This latter title would tally with *Aslib Book-List* and *Aslib Information.*

Periodicals which make a practice of containing articles divided between several issues are difficult to circulate on loan as often the references to articles required by different borrowers overlap on some issues and waiting-lists become very complex. The librarian would therefore be glad if continuation articles were restricted to a minimum and as many articles as possible were published complete in one issue. This, of course, cannot always be done, as, for instance, in the case of a series of articles in a monthly periodical which began in February 1945 and still continues with no signs yet of coming to an end! Fortunately, however, reprints have been available throughout the entire series. Otherwise it would have been impossible for the library I represent to lend each of the issues of the periodical to all the numerous borrowers interested. Reprints have other obvious advantages to the librarian and increased facilities for obtaining them (when the paper supply permits) would be useful.

The librarian is sometimes given unnecessary trouble by the practice of some periodicals in giving short accounts of papers published elsewhere and merely giving the reference as 'In a recent issue of . . .'. This is troublesome when one has a complete run of recent issues in which to look for the original reference; it is more so when all the recent issues are out on loan and possibly scattered all over the country! I once telephoned the editorial office of a periodical in this connexion and having got the required reference asked why full details had not been given. I was told that the practice was deliberate and done in order that such inquiries would be made and thus enable the editorial staff to know who was interested in the subject of the reference! I cannot recall my reply but clearly the purpose was not achieved as I was an intermediary acting on behalf of someone else who remained unknown. This practice leads to waste of time. A full reference to a paper in a periodical normally contains: Author, title of paper, name of periodical, date of issue, volume number, part number (this may

[1] W. Bonser, 'The Ideal Form in which a Journal should be produced from the Librarian's Point of View', *Rep. Proc. 6th Conference Aslib, 1929,* 63–9; Disc. 69–70.

not be possible when taking a reference from a bound volume), first and last pages of the paper. There may sometimes be need of additional information, e.g. series number, reference to discussion. The following example demonstrates a full reference:

W. L. Hall and L. Kenworthy. Some Fundamental Aspects of the Hot-dip Galvanizing Process. *Sheet Met. Ind.*, April, 1947, *24*(240), 741–752, 758.

The librarian would recommend that full references be given wherever possible. Abbreviated references are, however, often given, and a fairly common form of short reference is made up as follows: Author, name of periodical, year, volume, first page of paper. The omission of any reference to the exact date of issue and/or part number makes such a reference difficult to use in the case of a recent issue when it and the numbers around it are out on loan; it is also less suited for use with an unbound set of a periodical than with one that is bound. Such abbreviated references are sometimes given for periodicals which choose unhappily to begin each issue with page 1. They are then almost useless. The omission of the last page of a paper is small economy; to give it is often helpful. Abstract journals in particular should always give a full reference; some, however, give the year only instead of the full date of issue and also omit reference to the part number.

Storage and Binding

A limited number of standard page-sizes for periodicals would help the librarian in a number of ways but especially in storage.

Details of title, date of issue, volume and part number, pages contained, &c., printed on the flat spine of a periodical are helpful in taking unbound copies off a shelf or out of a filing-box with an open side. Periodicals having a spine unsuitable for printing might usefully copy the practice of *Engineering* which has its name, date of issue, volume number, pages contained, printed along the left edge of the front cover near enough to the edge to be almost equal to printing along a flat spine.

General

The aim of this paper is to point out some of those practices which librarians find convenient in the hope that they will be adopted wherever they are suitable and not already in use.

Before writing this paper I was privileged to read the typescript of Dr. V. E. Parke's paper to this Conference. That paper and Dr. W. Bonser's paper to the 1929 Conference cover so much ground that it was difficult to avoid some overlap of topic. I have, however, attempted to make an independent approach to the subject and also to avoid overmuch trespassing. This has led to the exclusion of some matters which I might be expected to mention.

III. THE EDITOR'S POINT OF VIEW

By L. J. F. BRIMBLE

Joint Editor, Nature

(Report of speech)

MR. BRIMBLE said that he had read Dr. Parke's paper and from it had built up a picture of what was Dr. Parke's ideal journal. He had come to the conclusion that Dr. Parke was describing *Nature*! *Nature* was the oldest scientific journal in the world and had been going for well-nigh eighty years. During that period format had only slightly changed as had type-faces and editors, but the cost nowadays was three times as great.

Standardization

Mr. Brimble agreed heartily with Dr. Parke concerning standardization, but said that at the same time we must also think of other people's points of view and other aspects apart from the convenience of the librarian. Editors, publishers, librarians, &c., were not antagonists; they were all out to help each other. In fact, bearing the librarian in mind, he sometimes had texts rewritten. Moreover, he often had to force an article into an issue so that it would appear in the same bound volume as another article on the same subject, thus aiding reference.

There was another problem which had not yet been mentioned, namely, the present-day tendency of scientists to rush into print. Up to about 1939 *Nature* usually had in type about seven or eight reviews, four or six main articles, and perhaps eighteen letters to the Editors. To-day there were about one hundred reviews, about fifty articles, and some two hundred letters awaiting publication. This was no doubt due to two main reasons. (1) The considerable advancement in scientific research during the past eight or nine years, and (2) the fact that men of science in so many countries were not able to communicate their researches for publication during the war. Too often these days letters submitted for publication were followed by further letters, telegrams, or cables asking for deferment because the author had discovered errors or had continued his researches which forced him to different conclusions. One almost felt inclined at times to return a communication as soon as it was received with a request to the author to be sure that he really meant what he had written.

Another unhealthy tendency was that of nationalism—the last thing one would wish to see in such an international discipline as science. Authors sometimes submitted communications with a request for early publication because by some devious means they had discovered that other workers were carrying out researches on the same project in another country. This sometimes also meant, of course, rushing into print. Some authors tended to publish every small step in a piece of

research when they might well be advised to wait a little longer and publish a review of the completed work.

A further point about standardization which Mr. Brimble warned against was that of the risk of coming down to the deadline of dreary monotony. He agreed with the four standard sizes proposed but asked for other things in the format, e.g. more colour. This he thought was desirable in journals themselves, and he himself would like to see a coloured cover for *Nature*. By these means a reader could easily recognize the journal. He suggested moreover that the bindings of journals in libraries should be varied in colour in order not only to aid in identification but also to relieve monotony.

Association of Special Libraries and Information Bureaux

Mr. Brimble said he disliked this title because it was far too long. The Association should think of the readers of journals which refer to it. In a journal such as *Nature*, for example, which circulated to all parts of the world, what was the use of printing 'Aslib'? The result was frequently communications asking what it meant. On the other hand, apart from the length of the title Mr. Brimble expressed his dislike of initial letters. This was developing to such an extent in science that quite a scientific shorthand was growing up. If this were allowed to develop it was possible that men of science themselves would not understand one another.

Reprints

The Editors of *Nature* had nothing to do with reprints. Requests were sent straight to the printers by the authors and the former dealt with the whole thing. Printers themselves did not like preparing reprints for several reasons. Mr. Brimble suggested that authors should consider whether reprints really were necessary, for it was undesirable that they should be issued unless they were quite essential.

Advertisers

On this question Mr. Brimble said he wished to disassociate himself from some of Dr. Parke's remarks. One must remember that nearly all journals were commercial propositions. *Nature* itself, for example, was completely free in that it was not the official organ of any one body, though it worked in complete collaboration with all scientific bodies throughout the world. It was owned by the House of Macmillan and in fact was run for nearly thirty years at a loss, the loss being borne by the two Macmillan brothers at that time. To-day, of course, it was on a sound financial footing, but it, like other journals, derived income from advertisements. (This applied even to special journals run by institutions, &c.) From the advertiser's point of view if it pays to advertise then you must pay to advertise. It would be a mistake to have standard sets of type in this connexion for variation was desirable if you were to attract attention. This involved the use of all kinds of typefaces.

References

Mr. Brimble said he would like to see absolute standardization here. It was, however, extremely difficult at times. He agreed with Mr. Patrick's suggestion with regard to references; he pointed out that when references deviated from the standard it frequently was the fault of the author and not the editors. At times the editors could put references right but not always, and it was not worth while, for example, to return a communication to Russia merely because the reference was not in the standard form.

Mr. Brimble wound up his remarks by pointing out to Aslib that if that Association wanted something done about standardization in format it should appoint a committee made up of interested people such as advertisers, editors, publishers, &c. This committee should prepare a memorandum which should be kept as short as possible because editors did not like having to read long memoranda. It was essential to do something of this sort. Merely to come to an agreement within four walls (that is, preaching to the converted) was not enough.

DISCUSSION

The Chairman, Mr. F. C. Francis, invited Dr. W. Bonser to take a seat on the platform in view of the fact that he had, at the sixth Annual Conference of Aslib, delivered a paper on the same subject, 'The Ideal Form in which a journal should be produced from a librarian's point of view'. Dr. Bonser said how pleased he was that a subject in which he had given the 'key paper' to Aslib eighteen years before should again have been before the Association. He sincerely hoped that some action would be taken. The spate of new journals since the war showed that the matter had again become one of importance.

He was sorry that Dr. Parke advocated that the standard size of periodicals should be 11½ to 12 inches in height, since Birmingham University Library—and probably other large libraries which had big collections of periodicals—had intentionally installed fixed shelving at 11 inches; this was because most periodicals at present were just under the 11 inches. While deploring the inclusion of advertisements in the middle of the text of an article, he appreciated the point that advertisers wished them to be in a place where they would catch the eye of the reader. He advocated their insertion (as in the periodical *Geography*) on whole pages, unpaginated, amidst the reading matter as well as at the beginning and end of the part.

He disagreed with Dr. Parke that the contents of the volume should be listed in the order in which the papers occurred. He would prefer them to be listed alphabetically under authors, as most references were to authors, possibly without the pages being quoted. Titlepages and contents, he thought, should be stitched into the final part of a volume, not, as advocated by Dr. Parke, left loose inside it as they might easily drop out and be lost. Dr. Bonser also rehearsed various points from his paper of 1929 which had not been reiterated by Dr. Parke or Mr. Patrick.

Mr. Eric N. Simons expressed appreciation of a sound and informative paper by Dr. Parke. He referred to the 20-year effort of the Incorporated Society of British Advertisers to standardize page sizes, but expressed the fear that in his remarks on the position of advertisements the speaker was likely to run counter to the settled policy of publishers. The competition among advertisers for next-to-reading-matter positions had compelled publishers to multiply the number of these by breaking up articles so as to interleave them with columns of advertisements. Mr. Simons said he had attacked this policy in articles in the professional advertising journals so hotly that advertising men had found him an even greater nuisance than librarians. Nevertheless, for publishers of private technical journals, such as the *Edgar Allen News*, there

were strong arguments for placing advertisements among text. For example, a perfectly unbiased independent article on pulverized fuel might face an advertisement of pulverized fuel plant, as the publisher desired from commercial policy to show that he supplied what an interested reader might need.

Mr. Simons said that his organization would adopt some of the suggestions made by Dr. Parke, but he was glad to find that most of them were already in being in their journal.

To publish the name, &c., of the editor of a privately published journal might seem to his colleagues to savour of self-advertisement, and it might be found in some firms that the chairman insisted on being declared the editor simply because he had, like the Soviets, a right of veto.

The difficulty of sending out an index was one of cost. The picking out of a handful of libraries from 10,000 names was not easy. The practice with the *Edgar Allen News* was to get people to apply in the first instance and then mail automatically to applicants each year. Otherwise it would be impossible to know how many to print and 10,000 would be too many, since relatively few readers bound their copies. Any librarian not regularly receiving the index to the *News* could get it regularly by applying to him.

Mr. C. W. Hanson suggested that as seventeen of the twenty-three points listed in Dr. Parke's summary did not seem to involve serious difficulty or substantial expense if they were clearly and persistently brought to the notice of publishers and editors, there was a fair chance of getting at least some of them adopted by some journals. Aslib should take appropriate steps to this end. The other six suggestions did involve substantial changes in publishing policy and some expense—three of them especially: page-size standardization, separation of advertisements from text, and articles run on continuously from page to page. The Conference, he said, probably could not influence decisions on these matters very much, but advertisers probably could, and fortunately many advertisers were in favour of the proposals. In addition to the support (mentioned by Dr. Parke) of the Institute of Incorporated Practitioners in Advertising for standardized page sizes, a leaflet issued in 1946 jointly by the British Engineers' Association and the British Electrical and Allied Manufacturers Association (with the support of the Incorporated Society of British Advertisers) advocated the adoption of the two other important proposals cited above. The Conference should therefore add its weight to that of the advertisers and help them to get their proposals adopted.

Mr. B. Agard Evans said that the librarian was not alone in desiring standardization of size. The British Standards Institution Committee concerned with the specification for trade literature in the building field (BS. 1311) was composed of architects, builders, advertising agents, one printer, librarians, and others representing both the issuing and the user interest; the unanimity towards a considerable measure of rigid standardization was really remarkable. The proposals on Dr. Parke's paper fitted in very well with the resolutions adopted in July by an International Conference at Paris dealing with the documentation of building literature. This body, though not plenipotentiary, recommended the adoption of a page size of 210 by 297 mm. (roughly $8\frac{1}{2}$ by 12 inches). It might help a great deal if advertising matter and periodicals were the same size so that the layout of display matter could serve both purposes.

As Chairman of the Publications Committee he felt he must reply to Mr. Patrick's criticism of the title of *Report of Proceedings of the Sixth Conference of the Association of Special Libraries and Information Bureaux*. While admitting that the title was cumbersome, Mr. Evans submitted that for an accurate and unambiguous description of the contents there was not a single superfluous word. The proposed *Aslib Proceedings*, while admittedly shorter, would be entirely misleading as Aslib had many meetings other than Annual Conferences, and after the impending amalgamation with the British Society for International Bibliography it was probable that there would be a regular periodical of proceedings for the new body. Mr. Evans undertook, however, to consider the title at the next meeting of the Publications Committee.

Mr. G. A. Shires said that it was very clear that Aslib was unanimous that a proposal on the lines of Dr. Parke's paper should be put to the publishers, and it should not be difficult to obtain agreement on details. Dr. Bonser nobly did the ground-work

in 1929, and Dr. Parke had valiantly brought it up to date. At that rate, it should be Dr. Bonser's turn again in 1965 and, while he sincerely hoped he would be spared to do it if necessary, he felt that some kind of assurance that the matter would be brought to some definite conclusion in a reasonable time should be sought. He suggested, therefore, that Council, or the committee appointed to deal with this question, should report back to members at the 1948 meeting and subsequently if necessary.

Miss B. Schafer said she was glad to see Aslib was to discuss this question of size and layout of journals, as it was one that had interested her for a long time. The first aspect of it which she noticed concerned offprints. The John Innes Institution, where she used to work, received a large number of offprints from all over the world, and it soon became evident to her that many of them contained too little, or too much, or the wrong information. They varied from the *Comptes Rendus*, of awkward square shape, and bound in thin blue sugar-paper bearing no marks of identity, to a certain German organ, which used the regular journal cover for its offprints. This cover gave the name of the editor and his twenty advisers; the names of two deceased editors, with little memorial crosses; the addresses of the publisher in the principal European capitals, and the pages comprised in the *Lieferung* from which the offprint was taken—everything the heart could wish, in fact, except the name of the author and the title and page references of his paper.

For several years, said the speaker, she had carried on a small private war against editors and publishers, sniping them whenever occasion offered; but although she had a few isolated successes—for example, she had persuaded *Nature* to send out its offprints identified by the volume and page, instead of the day and month—she had been a voice crying in the wilderness as regards getting any improvement in the general position and welcomed the prospect of concerted action by Aslib members and hoped to be allowed to join any 'ginger group' that might be formed.

Passing on to other topics which had come up in the discussion, Miss Schafer recommended that Dr. Bonser, who hoped to keep his journals on 11-inch shelving, should walk across the road to the Birmingham Central Reference Library and look at the racks of technical journals, especially the American ones. He would see that the battle was already lost. Her library, with say three-fifths of the trade material coming from the States, had had to adopt 12-inch boxes as standard, which meant at least 13-inch shelving.

There was everything to be said for more uniformity of size, but this should not be allowed to lead to uniformity of appearance. At B.X. Plastics they did their best to make the library reading room a little brighter than the rest of the factory, and they did not want to spoil the effect by filling the journal racks with stuff in drab, old-fashioned letterpress covers. If Mr. Brimble could rise to a touch of colour on *Nature* as he suggested, they would be even more in his debt than at present. Examples of good modern covers could be seen in *Discovery* and the *Journal of Applied Physics*, where scientific photographs of high technical quality were used in combination with bold letterpress and a bright identifying colour.

Miss Schafer suggested that editors of scientific journals who fell into arrears should cut their losses and admit the real date of publication.

Other points which called for attention were the provision of contents sheets and indexes. All technical journals, however low and commercial, should have enough self-respect to publish a note of their contents, and should regard it as a duty to their subscribers to publish a list of advertisers. Industrial journals were often taken principally for their advertisements. All serious organs should have an author index as well as a subject index. Many an hour had been wasted looking through the horrid small print of the subject—and only—index of the *Gardeners' Chronicle* for a signed article known to be there, but which the perversity of the indexer had concealed under 'Notes on New Plants' or 'Replies to Correspondents'. Another small point was that the volume and part of a journal should be printed on the spine, or cover, or preferably both. Some editors were highly recalcitrant. She had written a year or two ago to the editor of the *Industrial Chemist*, pointing out that the volume number did not appear on the spine, or on the cover, or inside the cover, or even on the contents sheet, which appeared at about page 48; but, for some arcane reason, it was printed on the page

following the contents sheet. Her letter had been civil and helpful, or so intended, but the editor in his reply had merely taken the opportunity of being funny at her expense. The journal had another editor nowadays, but its bad habits were unchanged.

Mr. J. Hanley said that since the issue of its booklet *The Standardization of Type Area Sizes for Trade and Technical Journals*, in May 1946, the Institute of Incorporated Practitioners in Advertising had continued its efforts to secure a greater measure of standardization of type areas in trade and technical journals. Informal discussions had been held with a number of leading groups of publishers who had accepted the principle and proposed to standardize as soon as circumstances permitted. A circular letter, listing the journals controlled by these publishers, had been issued to the trade and technical press and had met with a very encouraging response. Any steps which could be taken by Aslib to emphasize, especially among publishers, the clamant need for standardization would be much appreciated by the Institute.

Professor R. S. Hutton suggested that a summary of the pre-Nazi German standardization of periodicals should be included as a supplement to Mr. Parke's paper. The D.I.N. specified sizes were based on the most efficient utilization of standard widths of paper giving a small limited range of periodical sizes. In addition to other reasons for standardizing periodicals the proposals of Dr. N. W. Pirie (*The Journal of Documentation*, vol. i, p. 26) and Professor Bernal (*Report of Proceedings of Aslib 20th Conference*, p. 20) for future publication of scientific papers as individual issues would greatly benefit if these could be bound up in a small limited range of sizes.

The contents lists of each issue of a periodical was only of ephemeral value, and was replaced by the index of each volume. Consequently, it should not take up valuable space in the main pages. The ideal contents list was that published by *Stahl und Eisen*, inserted as a half-size page facing the inside of the cover printed on different colour paper, so as to attract attention, and more than paying for itself by the prominent advertisement location on its back.

Periodicals, and particularly daily papers, in mentioning new books and especially H.M.S.O. publications, should always give sufficient details of publisher and price to enable their readers to secure the original.

In the discussion some reference was made to discarding advertisements before binding. No doubt in many cases this was excusable, but specialist organizations should always, like a depository library, retain the advertisement in journals of their own field of interest, as they represented an important source of information on the history of technological advance. For similar reasons such organizations should always retain and bind even low-grade journals of their own field which more general libraries would almost certainly destroy altogether.

In closing the session the Chairman said that as the feeling of the meeting was so strongly in favour of standardization, Aslib would consider forming a committee to issue a short memorandum on the subject as had been suggested.

BOTH SIDES OF THE LIBRARIAN'S DESK

By

ERIC N. SIMONS

Publicity Manager, Edgar Allen & Co. Ltd.

AND

MISS M. EXLEY

Librarian, Medical and Scientific Research Libraries, Boots Pure Drug Co. Ltd.

MR. SIMONS: You, Miss Exley, are a librarian; I, among other things, am a professional journalist and Chairman of the Executive Committee of a flourishing Repertory Theatre; this necessarily means that I use libraries a great deal. It also means that when I want information I want it in a hurry. I may receive, in the post, or by telephone or telegram, a request for 2000 or so words *by return* on a specialized subject. Unlike many journalists I try to verify my facts, and for such verification I go to a library, or I may have to read an old play suddenly. You will see from this that time is a vital factor in the work I have to do, and you will forgive me, I know, if I concentrate some of the grievances I have against libraries into one comprehensive mass and fling them at you, not because I want to hurt you, but in the gay, irresponsible spirit with which one flings balls at an Aunt Sally at a fair-ground. (Please do not take the 'Aunt Sally' too literally!)

One of my first complaints is that you librarians, fresh from your dreary, interminable discussions of universal decimal classification and the supersession of mind, which you so obviously distrust, by punched-card machinery, never seem to put yourselves in the place of someone entering your library for the first time. You have your own technicalities and clichés, and use them freely in your libraries, sometimes without the slightest realization that they are not so clear to the general public as they are to you. I have just the same trouble with metallurgists. When I ask them to explain a process to a non-technical visitor, they pour out a spate of abstruse terms and leave the poor fellow worse off than he was before.

Let me, for a moment, assume that I am an adolescent, or an ordinary working man with no academic experience, entering a library, in an industrial city, for example, for the first time. I want, let us say, to look up a particular point in mechanics; I find myself confronted with a formidable-looking stack of drawers containing an appalling array of thousands of little cards, horrible, tightly packed little cards, that you cannot take out and look at, and needing both hands if you are to consult them, so that you cannot make any notes. This stack of drawers is labelled 'Subject Index' on one side and 'Author Index' on the other,

which means everything to you, but to the novice needs some translation; or sometimes the two are lumped together. Sometimes a section termed 'Class List' is added. Who but a librarian would know what is meant by 'Class List'? If the stack were labelled 'These cards show how the books are arranged and where they are' and on one side was written clearly 'If you know what the book you want is about, look here for what you need', and on the other side 'If you know who wrote the book you need, look for his name card here', then I think your raw beginner would have the courage to use the cards first instead of going straight to the attendant, as he nearly always does. Why, again, is it necessary to have one card for each book by a particular author? Why not have all his books on one card? Why not have a visible card index system and save endless space, time, and effort?

But suppose the beginner has found the card for his subject or his author and for the particular book that interests him; there is nothing on the card to tell him where to find the book, except a nasty little decimal number in the corner, 661·4 or something; on the card itself nothing tells him what this means. He ultimately finds out that it stands for the position of the book on a particular stack of shelves, and to that stack of shelves he goes; then, to his dismay, he finds that about 20 or 30 books all have the same number, and when he has looked at all these, often the particular book he wants is not there.

Why isn't it there? You will probably be able to tell me. If I may forecast your answer, you will say that the book is at the binders' being re-bound; or, being out of date, has been withdrawn from the shelves, and is somewhere in your extremely inaccessible store room; or is lost; or is not regarded as suitable for open access. Whatever the explanation, the time of the seeker is wasted, because he has to make another journey to the librarian to find out where the missing book is. The librarian has to make tedious inquiries or to offer sometimes inadequate explanations, and in general the impression created is one of inefficiency.

Let me give you a case in point. The other day I wanted some information on anatomy, and when I found my way to the anatomical section in a city library in quest of Gray's *Anatomy*, which is the standard book on the subject, that book of all books was not there. I eventually ran it to earth on a set of shelves in a room to which only the library staff have access, and I was told that it was not on the public shelves because some of the anatomical plates it contains are so tempting to the prurient that they might cut them out. This may be so, but you would imagine that only the tempting portions should therefore be removed and retained for reference and enjoyment by the staff, and at least the remainder left on the shelves for consultation. Surely it should be possible to indicate where a missing book is, in the place where it is usually kept. In commerce, when a particular file is removed from its place in the filing system, a sheet or card is inserted in that place stating the whereabouts of the missing file. Endless time in searching is saved in this way.

Every chief librarian, I am told, has also a special collection of bawdy

books in his private room, and these the public are not allowed to see. Why buy them at all, and with public money, if the public cannot have access to them? The Devil may have all the best tunes, but why should the chief librarians have all the best books, and keep them to themselves? Or are they there so that the Chairman of the Libraries Committee can have a good time while waiting for his Committee to turn up?

I was struck recently, when I visited a certain reference library, by the poor collection of books on biology. I suppose I shall be told that the library of an industrial city must concentrate on books of interest to industrialists; that of a chocolate-making city on books about chocolate, and so on; and that biology is only of minor interest in industrial towns. It is, in fact, true that there is a tendency for the public libraries of industrial cities to turn themselves, as far as their reference sections are concerned, into special libraries, but as a student and sometimes a researcher I am infuriated when I have to hold up my work because the particular standard books I wish to consult are not available in my own town. I should be the last to protest against the decision of any civic library to build up a massive and efficient collection of works on a specialized subject such as chocolate, cotton, iron, metallurgy, or steel. I do object, however, when this concentration is obtained at the expense of other scientific or reference sections. It seems to be argued that Manchester, for example, should specialize on cotton; Leeds and Bradford on wool; Birmingham on cast iron and non-ferrous alloys; Sheffield on steel, and so forth. But why should this mean, as it so often does, that the worker in a different field in any of these cities has to go to another town to find what he wants? By all means let a Sheffield steel man find anything he wants on steel in Sheffield, but for goodness' sake let the steel-worker in Manchester, for example, find a reasonably up-to-date and efficient range of material on steel in his own city. Liverpool need not have so much on steel as Sheffield, but at least let it have the basic material. I am not suggesting it hasn't, but merely giving this as an example of what I mean.

As I have said before, information is often wanted quickly, and with all due respect to the various schemes whereby books can be borrowed from other libraries, it rarely happens that such loans can be made without a delay of several days, weeks, and even months. Librarians in cities are, of course, considerably restricted in their purchases by the amounts allocated to them by their governing bodies, but at least I venture to protest against this tendency to over-specialization so prevalent to-day in civic libraries.

It is a curious thing that just when library staffs are so short that you would think it an advantage to save their time as much as possible, the practice of withdrawing reference material from open access appears to be increasing. For example, I will refer again to civic libraries, though I do not want you to think I believe this country inefficient in its library services. It has one of the finest library networks in the world, and I choose my examples from industrial cities only because I know your own familiarity with their problems and difficulties. In one library

I used to be able, for example, to look at the current *Commercial Motor* merely by going to the display rack and taking the copy. Now I have to ask an attendant for it. It is always found for me, but it all adds to the time and work involved, and I cannot see why. Either open access is a sound method or it is not; the present practice in some libraries seems to me neither one thing nor the other, and therefore irritating from all points of view.

Next I come to methods of classification, as exemplified, if I may refer to them again, in those disgusting little cards anchored firmly into their drawers to discourage people from using them. How difficult it is to find from them what you want! The other day I wanted some information on circular wood-saws: do you think I could find what I wanted from the cards? Something there was, but by no means enough. Actually much of the information I sought was in books on timber and its preparation, but there was nothing to indicate this on the cards. I could give you dozens of examples of similar character suggesting to me that whoever classifies these books and makes out the cards does so with the minimum of knowledge and imagination. I will not repeat the classic story of the pamphlet on 'hors d'œuvres' which was card-indexed under 'unemployment', but that sort of thing in a minor degree is continually creeping into library cards.

Then there is the awful impersonality of libraries. I can remember when a public library resembled a jail. You sat at a table, walled in by two radially disposed stacks of book-shelves, and high above you on a central platform, from which all the stacks radiated, sat a formidable dragon of a woman, the library assistant. She looked like nothing so much as a big gloomy spider at the centre of a web, and to consult her, if you dared, you had bashfully to mount in full view of the public a long flight of steps. You felt just like the fly in the parlour. Her eye swept every section relentlessly; to blow your nose was a crime; and to whisper was simply *lèse-majesté*. There is a legend that someone once hiccupped, and was forcibly removed by a squad of police.

Well, they're not so bad as that to-day, but why should they, I repeat, be so impersonal? One of the nicest things about the United States is the way in which, when you have any official business to transact, you know the name of the man you have to see before you speak to him. There, posted up at his pigeon-hole or over his desk, is his name for all the world to see. Somehow, to know that the man behind the counter is Mr. Hiram C. Brown makes you feel that he is friendly and human, much more so than when you simply see a grisly face peering out from behind bars or over a counter top.

I'm sure I should have felt far less scared of you, when I first saw you at Sheffield library, if you had had some sort of nameplate saying 'Miss M. Exley' on your counter. It's so much nicer to say to someone: 'Go and ask Miss Exley over there' than to say: 'Go and ask that stern-looking lass at the desk.'

Why in so many libraries does the Chief Librarian brood solitary in his handsome office, and never go about in friendly fashion among his

patrons? Why does he waste so much personal charm solely on those curious products of politics and the parish, the aldermen, the councillors, and the members of the Libraries Committee? The Chief Librarian should be as well known to his patrons as the publican to the frequenters of his pub, and for the same reasons. But is he? Not on your life!

Again, why is it that reference and special libraries are going in so strongly nowadays for young girl assistants whom one can only describe as 'snooty'? They have obviously been not to the local secondary school, but to some girls' high school or other, and by heaven! don't they know it! They look at you with the expression of a young woman whose father owns three cars, and you know at once that they only speak from choice to young men with well-pressed creases in their trousers and a public-school tie. When you ask them for a book, you feel like a man who has winked at the wrong girl, and when they give it you, you feel they will carefully disinfect it on its return.

What earthly use are pampered young pussies like these in a library for the public? I'm not saying they are openly rude or refuse to do their jobs. I say only that they are not sympathetic; they do their job in such a way as to convey that it is distasteful to them. 'Of course, I'm only here till my boy can find a house', one feels they are thinking. I have seen honest British workmen come to the counter, give them one long look as they spoke to someone else, and slink away again. That isn't what you want in a library. You want geniality, the human touch, a desire to serve, such enthusiasm and helpfulness as, I may say, I always found in you when you were in your previous post.

There's another point! Some of us with a liking for charm and geniality have our favourite library assistants, and are always disappointed when our favourite isn't on duty. Why don't we know your working hours and off periods? Surely it wouldn't be difficult to have the weekly rota posted up so that we should be able to time our visits accordingly. I'm not suggesting library assistants might get married sooner if that were done; but I do suggest that this is how people who use libraries feel, and it should be recognized. Sometimes, when researcher and library assistant are co-operating on a problem, time may be wasted by calling in for further discussion with that assistant on the wrong day or at the wrong time.

Why, next, are some of you librarians so reluctant to put real effort into your work; to think imaginatively of how you can serve local industries? I am always being asked by American libraries for copies of our catalogues and technical literature. Why can't I go to a local library and find as comprehensive a collection of American catalogues as their libraries undoubtedly have of ours? I don't say there aren't any, but I do say there are only a few; they are often not separated from British material; and many of them are badly out of date. To know what our overseas competitors are selling and making is of vital assistance to British exporters and manufacturers. The librarian could be of invaluable assistance to industry by keeping a close watch on American technical publicity literature, and obtaining it for reference.

Journals like *Metal Progress* and *Steel* publish regularly lists of American manufacturers' literature, and even include a printed application form for it, so that little time need be spent in looking for the right material.

Even your collections of British catalogues are, however, often feeble and badly arranged. In one library they are bundled into big, unwieldy, terrifically heavy boxes in alphabetical order, in a section now known popularly as 'Heart-strain House'. If you want to consult catalogues of machine tools, for instance, you have to fetch down every box in succession and rummage through it to find them. This particular library doesn't even provide washing facilities afterwards, or an ambulance for your collapse. Why can't you classify, not merely index, your catalogue material, see that it is complete and up to date, and make it easy to handle? Is it because this material is usually free of cost that you value it so little? I have been telling Aslibrarians for years that in catalogues and privately issued technical house journals and booklets there is often information more up to date and accurate than is to be found in the very latest text books, many of which are, in fact, compiled from older editions of this privately published literature. If you only knew how many! Why don't you act upon my advice? Is it that you can't be bothered, or that you share the prejudice of so many against privately published material just because it happens to be issued by a publicity department?

Another thing, while we are at it! Why do you always let the daftest and most inexperienced youngster on your staff answer the telephone, when I ring up with a technical query? First, she can't get my name right. Then she can't get my query right, and I have to repeat it several times. Finally, she goes away, and after a long, long wait, a courteous, sensible person comes to the 'phone, admits the youngster is on her beam ends—if a lady of that tender age can be said to have a beam end —and has to get you to tell your story all over again. Why can't the sensible person answer the 'phone first time, as she has to come anyhow? She's a busy woman. Yes, I know! But I'm a busy man, and judging by our respective salaries, I guess my time is worth a lot more than hers.

That brings me to salaries! Why do you librarians sell your services so cheaply? I see in my *New Statesman* every week advertisements for librarians and assistants, with knowledge and qualifications I would dearly love to possess, and the salary offered is about the same as we in industry pay for a good clerk. How do you expect the public to have the respect for and belief in the value of your work for the community, when so obviously you don't believe in it yourselves? A Chief Librarian in a big city gets, perhaps, £1,250 a year. In large-scale industry, for a job of comparable magnitude and responsibility, he would get anything from £1,750 to £3,000, and lots of opportunities to make a little more in those ways known to business men, of which, alas! I am so profoundly ignorant. But I am not worried about chiefs. I am worried about the minor figures of the library world, who do the donkey work for little more than the donkey's pay, and might almost be called the Vicars of don't-Bray-loud-enough.

One last word! Why don't you librarians adopt more of the devices of the publicity world? I see in my mind's eye your libraries filled with bright, attractively displayed slogans culled from books, such as these:

In the Newspaper Room:

'A horse, a horse, my kingdom for a horse!' (Shakespeare).

In the Chief Librarian's room:

'Upon what meat doth this our Caesar feed, that he is grown so great?' (Shakespeare).

In the Children's Library:

'Speak roughly to your little boy,
And beat him if he sneezes,
He only does it to annoy,
Because he knows it teases' (Carroll).

In the Science Section:

'Oh, star-eyed science! Hast thou wandered there?' (Campbell).

In the Reference Section:

'Do Kippers swim folded or flat?' or 'Sleep, O sleep, with thy rod of incantation!' (Gay).

In the Commercial Section:

'We are not here to sell a parcel of boilers and vats, but the potentiality of growing rich beyond the dreams of avarice!' (Dr. Johnson).

In the Historical Section:

'We learn from history that men never learn anything from history' (G. B. Shaw).

In the Staff Canteen:

'There are forty feeding like one' (Wordsworth), or
'Here with a loaf of bread' (Omar Khayyám).

In the Committee Room:

'Committee is a noun of multitude, signifying many, but not signifying much' (Spurgeon).

In the Lending Library:

'Go forth, my little book!
Pursue thy way!' (Wordsworth).

In the Medical Section:

'Death in ambush lay in every pill' (Garth).

In the Architectural Section:

'An example and an occasion for more monstrosities' (Sir A. Helps).

In the Theological Section:

'There are no wild beasts in England except in the Theological Gardens' (School-girl's essay).

In the Music Section:

'Music—an interesting noise.'

In the Poetry Section:

'The mere waste paper of mankind' (B. Franklin), or
'Cursed be the verse, how well soe'er it flow' (Pope).

And last but not least, *in your own library:*

'Boots, boots, boots, boots, marching up and down again' (Kipling).

Well, I've flung enough at you to go on with! Now I'll sit back and listen for a change, to return to the fray later, with seconds out of the ring, a fair field, and no favour. And please don't think there is anything bad-tempered or spiteful in my remarks about libraries and their shortcomings. There is a saying that only a mother without affection never spanks her child. If I have given some spanks, they are, I assure you, all affectionate ones.

Miss Exley: You, Mr. Simons, say I am a librarian. For some twelve years I suffered your inquiries and here you put yourself in the ring. I'll not make it a knock-out blow but you must go down point by point. In the consolation that I'm not a pampered young pussy, my father most certainly not running three cars, and my weakness not being well-creased trousers, I'll fight. No one but a professional journalist would make such rash generalizations. Aslib might have asked you for this paper in a hurry, but for once you troubled no library to verify your facts.

Do you seriously suggest, Mr. Simons, that librarians have never once put themselves in the place of a person entering their libraries for the first time? Do you seriously suggest that U.D.C., Cutter, Anglo-American Code, Dewey card catalogues, &c., are the joy and hope in a librarian's life? Let me make it clear here and now that for decades librarians have been working together to find that ideal system which will allow the utmost use to be made of their resources by the majority of people with the least trouble. Very naturally any librarian treasures his books as an art collector his pictures, but he treasures them only so that they can give help, assistance, and joy to his readers.

You don't like horrible, tightly packed little cards! They are not horrible and I like them. Fancy an industrial man saying he doesn't like cards; why, only a fortnight ago I came to see you and I began to fear you had put me on a card through your Hollerith machine.

You wisely condemn tightly packed cards and so do I, but have you fought for an oak card cabinet recently? Apparently card cabinets should be simplified for one-handed men. Why must you use one hand? Do you expect to go into your outfitter and buy a shirt with your left hand glued to your pocket? No, you just choose to expect more of your

librarian than of any other public servant. You don't like classified card catalogues, but all catalogues are not divided into three sections, though I feel sure I could anticipate a tirade of criticism about any other catalogue. The fact is you don't like catalogues at all, you want spoon-feeding. 'Subject Index', 'Author Index' and 'Class List' mean nothing to you and you prefer 'These cards show how the books are arranged and where they are', 'If you know what the book you want is about, look here for what you need', and 'If you know who wrote the book you need, look here', but remember you're always in a hurry, you wouldn't have time to read those. You journalists write articles and give them cryptic titles, but as a librarian with time to buy I have to read on to find their meaning. Quite seriously, Mr. Simons, you must remember the day when the catalogue in the average library had a well-worded guide to its use? Many such guides now lie in basements and store rooms because they were never read. Libraries throughout the country, more and more uniform in their methods, ask a reader only once to acquaint himself with the general arrangement of a catalogue. Thereafter any reasonable man should be able to find what he wants.

You don't like nasty little decimal numbers; you're just being awkward. How would you tell the reader where to find the book? The nasty little decimal number is, of course, the shorthand sign for maybe a whole string of words, maybe it's the spectographic analysis of steel, maybe it's for the bacteriology of spray-dried egg with particular reference to food-poisoning. Again, you must appreciate the librarian's problems. He must place the books on the shelves in the way best suited to the majority of his readers. Placing them by subject has proved to be the best way and on that at least you haven't disagreed—but because folk like you will insist on replacing books on the wrong shelf the subject of the book must be indicated somewhere on the spine of the book. Authors will give to their books titles bearing no indication of the subject, though here I confess you are not a culprit, and therefore some indication of the subject is necessary. You learned your A.B.C. at school, you mastered the intricacies of the decimal point, and if industry doesn't keep you up to scratch it's perhaps as well we librarians do.

Where is the missing book? You didn't check the catalogue because you don't like it, but it probably indicates where the book is to be found. It is perfectly reasonable to find a good percentage of a large collection of books stored outside the public room because, believe it or no, librarians have studied your comfort. They know you like your favourite books and the most important books shelved in a nice light and airy room with comfortable chairs and suitable tables, so perforce the lesser used books can only be available on demand. Now you'll tell me you wait half an hour for the book from the stack room, but if you must come in at tea-time, and even librarians eat, and if three folk will ring at the same time and engage three assistants, I must crave your indulgence this once. I am amazed to hear you suggest that less than

half a book should be placed on the shelf, for that's Gray's *Anatomy* minus plates, and in any case I'll gamble it would be a plate you'd want. As an author and a lover of books you should be ashamed to suggest such desecration. Cutting out plates is a pastime enjoyed by readers who, with a complete lack of public spirit, deny their fellow citizens the right to enjoy them. It is not a matter for light-heartedness in the eyes of the librarian but one of grave concern.

Don't ask me to put a slip on the shelf in place of a book temporarily withdrawn because some member of the public would most surely move this slip or use it for scrap paper. When an important book is removed I think you will find the average library replace it by a block of wood suitably inscribed. You suggest library staffs enjoy these pleasures to which the public are denied free access. Believe me that game soon palls and don't forget library staffs have dragons like me to drive them. Your presumption that chief librarians spend their time reading bawdy books I throw out to the many sitting in this hall.

I am very particularly interested in your concern about over-specialization in a particular subject, but again I feel you are grossly unfair and particularly when I look back on the library in Sheffield, where steel, mechanical engineering, coal, glass, chemistry, &c., which are in the main your interest, had pride of place. I wonder if you looked far enough for your book on biology? I wonder if you tried the lending library? I can't send you up in the general reference library because it isn't their subject, but in any case maybe your trousers were not sufficiently pressed to face the pampered young pussies.

Each librarian must select his books according to the demand in particular subjects, always keeping in mind that all subjects should at least be represented by the standard works. The librarian is not just a book collector; funds do not permit.

I could *almost* take sides with you when you bewail the time which it takes to get a book from some outside sources, though in Sheffield you are particularly well served in this respect. The city's joint resources in the scientific and technical field are terrific and they are well harnessed. It is true that an odd item of unusual interest may take some fair time to locate in one or other library in the country, but considerable effort is now being made in this sphere and the service must surely improve day by day. I'm sure it must occur to you that it is a matter of no small moment that bodies not endowed by public funds are willing to lend books and journals indirectly to individuals unknown and with little or no hope of a reciprocal favour. It's a very far cry from the old days when it was difficult to find a book even in your own library. This problem of interloan becomes more and more critical in the light of present-day conditions of publishing. Of any important book too few copies are published to-day and therefore demands on each copy grow longer. It is to be regretted that you must queue longer for your book as you queue longer for your bus—less books and less buses.

I'm sorry your *Commercial Motor* has now joined that noble band of periodicals 'available on demand'. Folks just pinch 'em and that's

why periodicals are back stage! One copy stolen and the file is incomplete. Where a periodical is bound that's a tragedy. Well I remember the summer in Sheffield two years ago when we lost one journal every day and with the same regularity had one returned by post each day unstamped. At length we discovered the offender and we were amused to learn that his previous connexion with the city police was due to an earlier failing for posting iron crowbars. He had a change, this time periodicals.

I don't like to hear you criticize the inadequacy of a library index, partly because I love good indexes, and in the main because it is perhaps your one score over me. You're being very careful in your choice of example, circular wood-saws, because I don't think there is any book devoted entirely to the subject, but only chapters in others. It should be every librarian's aim to make his index, his catalogue, the open sesame to his books. You suggest the librarian making the index does it with the minimum of knowledge and imagination. That's just rude and in any case the man who put 'hors-d'œuvres' under 'unemployment' must have had a very fine imagination.

To be perfectly serious, however, no time could be better spent than in the compilation of a good and useful index to the contents of any library. Of this librarians are well aware to-day. The specialization of inquiries makes it essential that the entire resources of every book are revealed in the library index and I might, in passing, appeal to you as an author to encourage your fellow men to heed this point. A book without a good index, and mark you I say good, is little more than a museum piece. Your library in Sheffield has indulged you for some years, however, as such books are indexed by the library staff.

So I've to have my name on my desk. What happens when I have three or four assistants helping me at the inquiry desk? I see your point, but please, oh please, not too much America. If a man really wants help or information he'll get it whether it be a Bill Smith or Ben Jones at the desk.

Chief Librarians seem to worry you, and I can assure you that they would only be too pleased to get amongst their books and readers more often. Why, every day in the week your daily paper answers your question—the bigger the organization the more remote the control. Does your Sales Manager see every potential customer? Not he, he sends his salesmen round and it's just as simple as that.

Trade literature, Mr. Simons, is a matter of no little concern to librarians as well as to industrialists and research workers, but why will publicity officers make our job so hard? Published in any format, any style, with no regularity, we librarians must get order out of chaos. Why separate American from British? Surely the subject-matter of the catalogue, be it British, American, French, or what, is the most important point. I'm horrified to think that you've been using the Sheffield collection for years and have never yet used the index; it was almost a life's work. I firmly believe that filing trade literature in alphabetical order of the name of the firms the best possible way. It

can't be filed by subject because you will insist in putting nuts and bolts with spanners, refrigerators with sausage machines, &c. My plea is for more standardization in the production of trade catalogues. You can't tell me how valuable they are. I know, but I wonder if you realize the work involved in collecting and organizing a really comprehensive collection of trade literature even in a narrow field. I'm just starting my collection covering medicine, chemistry, agriculture, horticulture, veterinary medicine, pharmacy, &c., and I shudder at the thought.

Telephones and salaries. I'm not going to say a deal. Does your office girl never answer the 'phone, Mr. Simons? Would you be a librarian and answer thousands of calls in a year—how can I painlessly kill my tortoise? What is the specific gravity of sand? How do I get to Timbuctoo? What is the chemical composition of Nicrome steel? Has anything been published recently on testerone in the treatment of mammary carcinoma? &c. It's all in a day's work for a librarian, and at what a salary you say! Mr. Simons, you should get yourself elected as a Councillor, become Chairman of the Libraries Committee, talk about this to all Research Directors, to Managing Directors, to anyone in fact employing librarians. We believe in ourselves, have no fear, but I think I must add that even though librarians can no more face the price of cigarettes than you can, they still look on librarianship as a vocation. A librarian gets far more from his job than an average secretary or accountant. Whilst I would not suggest he is a man of peculiar ways, he is a man deriving no small satisfaction from his contact with books, his contact with interesting people, individuals as well as societies, &c. Salaries have improved and appropriate bodies watch our interests now. I feel I must congratulate myself, however, on stepping into industry, though as a librarian, and I look forward to my £3,000 a year.

Now can you tell me, Mr. Simons, why industrialists, technicians, and research workers are always so vague in their requests for information? Don't tell me they are busy men because I'm a busy woman and, high salary or low, my time is every bit as precious as theirs. Why do you ask for the *Archives of Dermatology*, vol. xlii, 1947, when you really want vol. xlvii, 1942? Why do you never know the page, and why is the author always but a memory? Why do you ask for one thing and mean another? Librarians give lectures to schoolchildren on the use of books and libraries, but you know that field is much wider in scope.

Why are you always in a hurry? I know you've got a whole machine shop held up because you haven't got the B.S.I. spec. by you to release the work, but why didn't you look into that yesterday? My examples are as bad as yours—they are far-fetched—but there is more than a grain of truth in them. The value of a library and the speed and efficiency of its service could be increased hundredfold if only its clients would first stop to think. To ask for correct information is a small thing, but to receive it means much in helping a librarian to find the references, or to find further information, and that much more quickly.

These days of rush and bustle have made it only far too rare for the

librarian to receive a visit from the inquirer in need of help. How much easier it is to work for the man who comes along, let it be for coffee if you like, to discuss with you any work he requires. Only the other day I had a visit from a research officer wanting a very extensive review of literature on the sterilization of medical products, from the chemical engineering angle. As a result the work is now proceeding under the guidance of a number of considered headings, particular angles of interest in this specialist field. The next inquirer who gets his secretary to ring me for a similar survey on the use of hexylresorcinol in helminthology in pigs, sheep, and poultry doesn't get quite such a blessing because (*a*) I must ask him for more details, and (*b*) being human, my interest is not so great. My chemical man talked to me with enthusiasm, I know why he wants it, and I can watch for results.

Can you tell me too, Mr. Simons, why industrialists, technicians, and research workers like books and journals for teacup stands? Why must you leave them in peril on laboratory benches and why do you want them for such a long time? I well know it's nice to have books handy, I know there are occasions when the laboratory can't be left. Books furnish your office, your desk, but their rightful place is in the library where everybody can use them, and I beg you—send them back as soon as possible.

I hope I've not hit below the belt, Mr. Simons, though of course you asked for this. We've both been in the ring with fists bared, and now I feel we must throw open the fight to the crowd.

Mr. Simons: The orator, Burke, was once speaking against slavery, when some member of his audience threw a rotten egg, which hit him full in the face. Unperturbed, Burke drew out his handkerchief, wiped his face, and said: 'I always knew the arguments for slavery were somewhat unsound.' I feel that Miss Exley has thrown a verbal rotten egg at me, and that her arguments are equally unsound.

I do not suggest that Dewey, &c., are 'a librarian's joy and hope'. I do suggest they are a library novice's nightmare.

Cards of the type I described *are* horrible, and though Miss Exley likes them, I cannot accept that as an argument. She doesn't answer at all my reasoned criticisms. I showed her our Hollerith system as an awful warning. I had no idea she was so fascinated as to wish to pass through the machine herself. And I am not an *industrial* man. I am an *industrious* man.

I have never fought and should never 'fight for an oak cabinet'. They are quite out of date! And of course I want one hand free so as to note down those wretched decimals. When I buy a shirt to-day, one hand has certainly to go very deeply into my pocket. I don't expect more of a librarian than I do of myself, and I never said I didn't like a classified card catalogue. What I don't like is a clumsy and inefficient catalogue. Of course I want inexperienced people to be spoon-fed. A babe needs to be, and your new-comer in the library is a babe.

I don't care what your decimals stand for. Shorthand is meaningless

unless you can read it, and what novice can? I sometimes think you librarians, like doctors, prefer things 'wropt in mystery'. Incidentally, I never did master at school the intricacies of your 'damned dots' as, I believe, Lord Randolph Churchill called them. Industry doesn't keep *me* up to scratch. It is I who keep industry—and librarians—up to scratch.

I don't mind books being available only on demand if the library system tells me so at once, and doesn't waste my time hunting for them.

You play the game of 'window curtains' very well, Miss Exley! When you tell someone his window curtains are a little too pink, he replies 'Oh, you want them bright blue!' A perfectly illogical answer! If I suggest that Gray's *Anatomy* should be on the shelves, even if you have to cut out one or two plates, you tell me I want *all* the plates cut out, and approve of plate-cutting. I don't want any plates cut out, but Gray's is not a 'little-used book', and I want it where it should be, for reference.

I observe in your remarks that contempt for the public so often characteristic of the public official. Until I heard your reply, I had no idea library users were such nit-wits. Why, then, do you bother with us at all? Surely the sensible blokes should not be tormented and harassed and delayed because you occasionally get a lunatic in the library who is *not* behind the counter. I once took a party round our works, and some ass among them pulled a knob and fused a whole mass of things. We didn't promptly remove the machine and hide it; nor did we henceforward act on the view that all visitors were dangerous criminals.

I observe that you, not I, refer to yourself as a dragon. Far be it from me to describe myself as St. George, but the result of the battle between us is perhaps an equally foregone conclusion.

I am afraid you have taken my remarks as applying to Sheffield only. They don't. Sheffield is better than most. The card index, however, should be an index to subjects, so that if there is a book on the Devil—as indeed there is—there should be cross-reference in the index to the Bible, for example.

Why this instinctive and unreasoning rejection of a good idea because it comes from America? And oh! that old, old cry of the public servant: 'If you really want what I have got, you'll sweat blood to get it. But I mustn't ever sweat to give it you!' Why should a man have to walk round a library as he walks round the maze at Hampton Court? Don't you public officials ever realize that most of the public hates officials, and refuses to believe them human? All I want is a little suggestion of humanity on your desks to counter the dragon-like aspects of some of you.

At least *one* of our Directors tries to see *every* buyer who comes to the works on business. Naturally, I don't expect the chief librarian to go out to homes in the suburbs and slums, but I don't see why he shouldn't treat his visitors as we do. Remote control be blowed! Your job should be to teach industry how to humanize an organization, not just to copy their bad points.

As for trade literature, publicity managers have tried their utmost, as you have already heard this morning, to get standard catalogue sizes. It is usually the managing director in many firms who fancies something different, or the advertising agent in London. I never said I had not used your catalogue index, but I don't agree that nine-tenths of the catalogues couldn't be grouped by subject. The awkward squad could be under 'miscellaneous'.

No, my office juniors *don't* answer the telephone unless both my assistant and I are out, which is most unusual! As for my being elected a Councillor, since what date after the election of Councillor Ballard have intelligent men been elected to City Councils?

I agree—a librarian gets a lot out of his job. Think of the fun of watching the nit-wit public looking for what isn't there! Joking apart, though, I hope you do get your £3,000 a year. But you will have to find some better arguments in support of your case than you have used to-day.

I am not responsible for the fact that men in industry are so vague about what they want. Some of them are still in the stages of learning to read. Others are frightened of you public officials, and go all haywire when they see or hear you. Generally, the explanation is that one's memory of something seen dims with time, just as your memory of what I said half an hour ago has obviously dimmed. I should be the last to deny the needless delays and imprecision of many of the men you describe. Don't forget that I too suffer from it! But I have said all I ever need to say about technicians and their treatment of books in the last paper I gave to this conference.

DISCUSSION

Miss M. Gosset acted as Chairman for this session.

In the discussion, Mr. Agard Evans said that he could not enter the lists in quite the same hammer and tongs spirit that he had enjoyed from the speakers. As a librarian he deplored the need for pandering to the slipshod customer who browsed on the shelves, thereby covering his needs most inefficiently instead of using the index and prosecuting his search in a logical manner. The shelves, arranged by subject, could not contain the articles in periodicals, the flimsier pamphlets, nor could they show the books which were not there, either because they were out on loan or not possessed by the library. He preferred the only satisfactory system of shelving books solely by size and the order of acquisition. This method utilized shelf space to the full, avoided the need for moving the books around, and provided an entirely specific call number. Unfortunately, he had to bow to the reader as far as arranging the books was concerned, but he took jolly good care not to arrange the pamphlets by subject.

Dr. W. O. Hassall stated that the Bodleian classification system, one of the earliest decimal systems, had long used a letter indicative of size in the reference of each book—the useful system now rediscovered by the Librarian of the Ministry of Works. As a '"class-conscious" professional librarian' he felt that Miss Exley had rather sold the pass and, as to her fears that a library might become a mere museum, some regarded a good museum as the ideal! If a great research library was to do its job and to help to the full specialists from all over the world who really needed its resources, then readers who did not require its special resources would have to be regretfully excluded —however much one would like to admit them for the purpose of their examinations,

profit, or personal culture, and however learned or influential their recommenders. Much research consisted in publishing what perhaps mostly had been left unpublished for centuries or in rehashing what had already been published. In the absence of a censor many redundant secondary books found publishers prepared to expend paper on them, and it was the duty of the librarian to help even such writers to find the best sources so that the results should be made of good materials even if they were half-baked.

Miss Gosset then proposed votes of thanks to the speakers, to the London School of Economics for putting the hall at Aslib's disposal and the hostel where the men were staying; and to the University of London for Canterbury Hall, also a special vote of thanks to Mr. Woledge; and last, but by no means least, to the staff of Aslib for the hard work they had put in over the week-end. All these proposals were carried with acclamation.

EXHIBITION OF BOOKS AND PERIODICALS

CATALOGUE

NOTE: The American Library Association also sent some books to the Exhibition, but most unfortunately they were delayed on the way and did not arrive in time.

Publications lent by the Library Association

LIBRARY ASSOCIATION, Book construction. *London, L.A.*, 1931. *pp.* 43.

LIBRARY ASSOCIATION, The durability of paper. *London, L.A.*, 1930. *pp.* 24.

LIBRARY ASSOCIATION, The public library service: its post-war reorganisation and development. Proposals by the Council of the Library Association. *London, L.A.*, 1943. *pp.* 16.

LIBRARY ASSOCIATION, The subject index to periodicals, 1944. *T. Rowland Powel, General editor. London, L.A.*, 1946. *pp. x*, 394.

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Dr. Dyson was born and educated in London; after graduating at Oxford he proceeded to Imperial College of Science, London, where he continued his researches on aromatic sulphur compounds. After a period in Manchester he became Head of the Chemical Engineering and Pure Science Departments of Loughborough College. During his ten years in the latter capacity he carried out a long series of researches on sulphur compounds, on the rates of chemical reactions, and on synthetic drugs. Since 1938 he has rejoined industry and is Technical Director of a number of chemical manufacturing firms. His publications include treatises on chemotherapy, synthetic drugs, and organic nomenclature.

W. E. Batten, Ph.D., B.Sc., D.I.C., A.R.C.S., A.R.I.C.

Dr. Batten is the Head of the Patents and Intelligence Department of I.C.I. Ltd., Plastics Division, which position he has held since its inception in 1942. Prior to that, back to 1934, he served I.C.I. in various capacities, primarily in research and patent work, his work since 1938 having been solely in the field of plastics.

Dr. Batten is a Londoner by birth and by education, having proceeded from Wilson's Grammar School to the Royal College of Science, where he read chemistry and subsequently carried out research under the late Professor Sir J. C. Thorpe.

J. W. Perry, B.S., M.S., S.M.

Dr. Perry is Chairman of the Punched Card Committee of the American Chemical Society and a member of the International Union of Chemistry Commission for Codification, Ciphering, Punched Cards, &c. He gained the degrees of B.S. and M.S. at North Carolina State College and was awarded the degree of S.M. at Massachusetts Institute of Technology. For the American Chemical Society he has carried out abstracting for *Chemical Abstracts*, prepared new instructions for abstracting patents adopted by this publication, and from 1946 to 1947 served on programme as chairman and organized two symposia on processing and transferring chemical information, with special attention to punched cards.

His publications include a set of papers on Russian to be published in book form shortly, and in preparation is a book on synthetic detergents.

Dr. Spencer C. Stanford, B.S., M.S., Ph.D.

Dr. Stanford was born and educated in the United States. He taught in several colleges for a period of ten years. In 1944 he became Technical Librarian for the Monsanto Chemical Co., at their Central Research Laboratory in Dayton, Ohio. At the present time he is Technical Librarian at the Brookhaven National Laboratory, New York, which is operated by the nine large eastern universities for the Atomic Energy Commission. He is a member of the American Chemical Society Punched Card Committee. He has contributed part of the paper by Dr. Perry.

His publications include papers on the physical properties of organic compounds and on infra-red spectrographic studies of the hydrogen bond.

Miss Lorna A. Ferris, B.S.

Miss Ferris worked in the Boston Public Library for six years, from 1941 to 1947. In 1947 she did statistical research at the Massachusetts Institute of Technology, under Mr. J. G. Bryan. In March 1947 she began work for the American Chemical Society, under Dr. Perry, on a study of the applications of punched cards in chemistry. She has assisted in the preparation of Dr. Perry's paper.

Dr. V. E. Parke, M.A., D.Sc.

Dr. Parke has been Intelligence Officer of the Billingham Division of Imperial Chemical Industries Limited since 1940. He joined the staff of the Nitrogen Department of Brunner Mond & Co., in 1920 at its inception, and so has had a share from the beginning in the developments of both manufacture and research that have gone to make this very large and important Division. He has the degrees of M.A. and D.Sc. of Edinburgh and was elected to the Aslib Council in 1946.

L. J. F. Brimble, B.Sc., F.L.S.

Mr. Brimble is Joint-Editor of *Nature*, a position he has held since 1938, having previously been Assistant Editor for some years. He holds the degree of B.Sc. of the Universities both of London and Reading. He was formerly Lecturer in the Universities of Glasgow and Manchester. He is a Fellow of the Linnean Society and a member of that Society's library committee. His publications include text-books on biology and sociology and education, and he has also edited many scientific, educational, and medical books. He has travelled in India, Burma, and Egypt, delivering lectures on various educational and sociological topics in universities and in the Services.

L. G. Patrick, F.L.A.

Mr. Patrick is Librarian to the British Non-Ferrous Metals Research Association where he has been employed since 1934. Previous library appointments were with University College, London, and the Wellcome Historical Medical Museum. He was elected a Fellow of the Library Association in 1937.

Eric N. Simons

Mr. Simons was born and educated in Birmingham. Since leaving school he has been with Edgar Allen and Co. Ltd. in various capacities and, following his service in the 1914–18 war with M.I.5, he has been Publicity Manager with a short interlude as Assistant Sales Manager. He was a member of the British Trade Delegation to Russia in 1929, and during the last war was a regular writer for the Ministry of Information and the British Council. He is the author of three novels and many other books. He was a member of Aslib Council up till 1947.

Miss M. Exley, F.L.A.

Miss Exley is the Librarian of the Medical and Scientific Research Libraries, Boots Pure Drug Co. Ltd., Nottingham. Previously she was Librarian of the Commercial and Science and Technology Libraries, Sheffield (Headquarters of the Organization for the interchange of technical publications in Sheffield). She is a member of the Northern Branch Committee of Aslib, and a newly elected member of Council.

REPORT OF THE TWENTY-SECOND ANNUAL GENERAL MEETING

THE twenty-second Annual General Meeting of the Association of Special Libraries and Information Bureaux took place at Canterbury Hall, Cartwright Gardens, London, W.C.1, on Friday, 19 September 1947, at 5 p.m.

One hundred and fifty-one members were present.

Chairman: Mr. C. Le Maistre, C.B.E. (Chairman of Council) acted as Chairman of the meeting in the absence of Sir Reginald Stradling, C.B., M.C., D.S.O., F.R.S., M.I.C.E. (President of the Association), who was unable to be present.

The Director read the notice convening the meeting.

ITEM I. **Minutes of the Last General Meeting**

The adoption of the minutes of the twenty-first Annual General Meeting, held on 13 September 1946, and printed in the *Report of the Proceedings of the Twenty-first Conference*, was moved by Dr. J. C. Withers, seconded by Mr. J. E. Wright, and carried unanimously. The minutes were signed by the Chairman.

ITEM II. **Accounts**

The audited statement of the accounts for the financial year ending 30 June 1947 was accepted unanimously after some discussion on the stocks in hand of publications. The Chairman of the Publications Committee stated that although not included in the accounts these stocks were a very real asset. The motion for acceptance was proposed by Mr. R. J. Hill and seconded by Mr. G. Woledge.

ITEM III. **Appointment of Auditors**

Mr. B. M. Headicar proposed and Mr. G. H. Davison seconded the appointment of Messrs. West and Drake as Auditors for a further year at a fee to be decided by the Council. This proposal was carried unanimously.

ITEM IV. **Report on the Year's Work**

The Director presented the Council's Report on the Year's Work of Aslib, which had been previously circulated to members. The Chairman moved the adoption of the Report amid applause which, as he said, indicated unanimous approval of the Director's statement.

ITEM V. **Joint Aslib–B.S.I.B. Committee**

The Chairman then made a statement on the progress of the work of the joint Aslib–B.S.I.B. Committee on the proposed amalgamation of the two bodies. (See page 108.)

ITEM VI. **Election of Officers**

The President, Sir Reginald Stradling, was re-elected for a further year, on a motion from the Chair and amid applause. Mr. T. M. Herbert was re-elected Hon. Secretary of the Association. Proposed by Mr. A. Williams and seconded by Mrs. J. Lancaster Jones, his election was warmly acclaimed. So also was the re-election of Miss I. Shrigley as Hon. Treasurer, on a proposal by Miss M. Gossett, seconded by Miss M. R. Fletcher.

ITEM VII. **Election of Council**

Mr. G. A. Shires proposed and Mr. W. E. White seconded the formal acceptance of the following six new nominations for Council: Dr. W. Bonser, Mr. J. J. Eaton, Mr. R. E. Enthoven, Miss M. Exley, Dr. R. S. Schultze, Dr. J. C. Withers. This resolution was carried unanimously.

ITEM VIII. **F.I.D. Conference**

The elections completed the official business, but before closing the meeting the Chairman called on Mr. J. F. Stanley to make a statement on the Berne Conference of The International Federation for Documentation (F.I.D.). (See page 120.)

ITEM IX. **Votes of Thanks**

Mr. A. E. Cummins moved a vote of thanks to the Director and her staff for their work during the year. This was carried unanimously. Mr. Herbert then moved a hearty vote of thanks to Mr. Le Maistre for taking the Chair, and for his work on the proposed amalgamation of the B.S.I.B. with Aslib, and for his masterly representation of the Association at the F.I.D. Conference. This was passed with warm applause.

The Proceedings were then closed.

ASLIB

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 30 JUNE 1947

Dr. 1945/6 £	EXPENDITURE	£ s. d.	1947 £ s. d.
	To General Expenditure:		
2,625	Salaries	3,629 16 6	
353	Rent, Water Rate, and Hire of Rooms	359 14 2	
64	Light and Heat	41 17 5	
353	Printing and Stationery	534 16 8	
515	Postages and Telephone	738 19 3	
2	Travelling	12 17 7	
135	Office Expenses	266 3 1	
7	Insurance	6 9 4	
5	Reference Books	51 18 2	
21	Audit Fee	31 10 0	
13	Depreciation of Furniture and Fittings	23 17 4	
4,093			5,697 19 6
	Cost of Publications Issued:		
139	Book-List	152 4 6	
33	Aslib Information	147 13 3	
	Wright's Manual of Special Library Technique	151 4 11	
35	" " " " Royalties	26 10 2	
316	The Journal of Documentation	691 9 6	
113	Select List	13 16 0	
110	Bibliography of Italy	— — —	
165	Collective Author and Subject Index	— — —	
	Catalogue of Scientific Films	260 5 9	
	Music Publishers' Numbers	26 5 0	
	" " " Royalties	19 10	
	List of Medical Libraries Royalties	19 0	
	Books and Army Education 1944–6	119 18 6	
	Report on Indexing and Filing of Unpublished Materials	30 9 6	
	Report on Planning and Equipment of Special Libraries	39 5 0	
	Other Publications	61 14 9	
911			1,722 15 8
	Preliminary Work on Other Publications		140 0 0
	Work Carried out on behalf of the British		
300	Council		362 10 0
	Conferences and Meetings:		
295	General Expenses	210 13 6	
	International Conference Expenses	55 8 2	
241	Printing of Reports	220 0 0	
536			486 1 8
	Library Training Course:		
73	Lecturers' Fees and Accommodation		92 8 0
5,913			8,501 14 10
	Balance, being Excess of Income over Expenditure for Year		1 2 7
671			
£6,584			£8,502 17 5

1945/6 £	INCOME	£ s. d.	Cr. 1947 £ s. d.
	By General Income:		
	Members' Subscriptions and Donations:		
	British	2,631 19 4	
	Foreign	276 2 2	
2,216			2,908 1 6
	Sales of Publications:		
348	Book-List	325 3 4	
9	War-Time Guides	1 17 1	
	Wright's Manual of Special Library Technique	212 1 4	
821	The Journal of Documentation	836 1 11	
102	Select List	100 1 5	
7	Bibliography of Italy	35 12 7	
274	Collective Author and Subject Index	21 15 11	
	Catalogue of Scientific Films	390 9 5	
	Music Publishers' Numbers	9 18 5	
	List of Medical Libraries	9 10 0	
	Books and Army Education 1944–6	66 14 9	
	Report on Indexing and Filing of Unpublished Material	57 15 5	
	Report on Planning and Equipment of Special Libraries	1 5 4	
17	Other Publications	24 9 11	
1,731			2,092 16 10
	Conferences and Meetings:		
624	Fees	371 10 0	
84	Report Sales	125 12 2	
	Report Index Sales	1 17 0	
708			498 19 2
351	Library Training Course Fees		327 10 8
	Grants:		
300	British Council	362 10 0	
1,000	Department of Scientific and Industrial Research	2,000 0 0	
			2,362 10 0
	Documentary Reproduction Service:		
	Fees Receivable	570 1 7	
	Less: Expenditure	276 7 10	
253			293 13 9
11	Translators' Panel:		
	Income	17 1 0	
14	*Less*: Expenditure	1 15 0	
			15 6 0
	Sundry Receipts		3 19 6
£6,584			£8,502 17 5

BALANCE SHEET, 30 JUNE 1947

Dr. LIABILITIES	£ s. d.	£ s. d.	1947	ASSETS	£ s. d.	£ s. d.	Cr. 1947
Bank Overdraft		311 19 0		Furniture and Fittings:			
Sundry Creditors and Provisions:			215	As at 30 June 1946	285 0 0		
230 Current Expenses	303 1 5		83	Additions	183 17 4		
388 Printing of Publications	911 13 2		298		468 17 4		
Royalties on Publication Sales	28 9 0		13	*Less*: Depreciation	23 17 4		
5 (Advance Subscriptions)	— — —		285			445 0 0	
		1,243 3 7					
623		1,555 2 7		Sundry Debtors:			
Income and Expenditure Account:			997	General	1,392 9 8		
88 Balance as at 30 June 1946	759 3 4			Publications	935 2 3		
671 *Add:* Surplus for year to date	1 2 7		7	Deposit	7 0 0		
Additional Grant from Department of Scientific and Industrial Research in respect of the year ended 30 June 1946	500 0 0		1,004			2,334 12 1	
			41	Cash in Hand		35 16 5	
759		1,260 5 11	52	(Cash at Bank)		— — —	
			93				
£1,382		£2,815 8 6	£1,382			£2,815 8 6	

REPORT TO THE MEMBERS OF THE ASSOCIATION OF SPECIAL LIBRARIES AND INFORMATION BUREAUX

We have audited the above Balance Sheet and have obtained all the information and explanations we have required. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the Association's affairs according to the information given to us and as shown by the books of the Association.

(Signed) West & Drake,
Chartered Accountants.

Sardinia House, 52 Lincoln's Inn Fields, London. W.C. 2.
31 July 1947.

STATEMENT ON THE AMALGAMATION OF ASLIB AND THE BRITISH SOCIETY FOR INTERNATIONAL BIBLIOGRAPHY

Presented at the Annual General Meeting by the President of Council

AT the Annual General Meeting last year the amalgamation of Aslib and the B.S.I.B. was agreed and a special joint-committee was set up 'to work out a method in which the two bodies could be brought together . . . '.

This joint-committee has worked so harmoniously that by April this year both Aslib and the B.S.I.B. were able to call extraordinary meetings, at which the underlying principles on which it was recommended that the amalgamation should take place were agreed by the members of both organizations, and full powers were given to the respective Councils to take all the necessary steps to carry the amalgamation into effect. Thanks particularly to Dr. Bradford's most helpful co-operation, the joint-committee in six months had not only brought the two bodies together, but had also made their actual coalescence possible.

The opportunity is being taken, in connexion with the amalgamation, of thoroughly revising the Aslib Memorandum and Articles of Association, which in themselves have been accepted as a basis for the new organization. The joint-committee is continuing its work, and a drafting sub-committee has completed a new draft constitution incorporating the amendments proposed and generally approved at the A.G.M., mentioned above. It has also included the relevant Articles of the present Regulations of the B.S.I.B. and the clauses demanded by the Board of Trade for organizations in receipt of Treasury grants through the Department of Scientific and Industrial Research, and many improvements consonant with the present-day progress and enlarged scope of Aslib.

This draft constitution is still being edited, and has not yet been adopted by the Council. The main modifications will be in the Objects of the Association, which are being broadened to accommodate those of the B.S.I.B., and also our own increased activities, and to include powers of teaching and of professional improvement; in the types of membership, which have been altered to conform with actual requirements to-day and to provide for junior or student members; in the creation of four vice-presidencies; in a simplification of the method of electing Council which will allow of an easier postal ballot, when this is necessary; and in alterations to the method of collecting subscriptions to assist Aslib accounting and those members who prefer to pay on account of a definite financial year.

The time-table which the Council has in mind provides for the new body to be incorporated on 1 January 1948. This means that both the present Aslib and B.S.I.B. organizations will have to go into liquidation as soon as possible after this date so that their assets and liabilities may be transferred to the new organization. An extraordinary general meeting will be called to authorize this transfer.

Before 31 December a copy of the new Memorandum and Articles will be sent to each member. It is not possible to do this at the present time because the draft is still subject to amendment by the Board of Trade, the D.S.I.R., and the Councils of Aslib and the B.S.I.B. The Principles of Amalgamation have already been circulated to the membership, and published in the *Bulletin*, and every effort will be made to keep members fully informed as the amalgamation progresses. You may rest assured that your Council members have given and are giving these matters, in every detail, their most assiduous and careful consideration, and that all the legal aspects of the new Constitution will be duly taken care of. Finally, we feel sure that this amalgamation will redound to the benefit of both organizations and that this union—this unity of action—will give added strength at home and abroad both in dignity and effectiveness.

THE YEAR'S WORK OF ASLIB, 1946–7

(A report presented at the Annual General Meeting held at Canterbury Hall, Cartwright Gardens, London, W.C. 1, on 19 September 1947)

THE review of Aslib's work given at the 1946 Conference reported a period of rapid growth and reorganization. Both these processes have continued during the year now under consideration and seem likely to continue for some years to come. No sooner does a fresh development become assimilated into the organization than it forms the vantage point from which new projects can be surveyed and considered.

This constant exploration of fresh fields, however, has in no way been allowed to upset the direct services of the Association to its members: a fact well illustrated by a few figures concerning the day-to-day activities of the head office. The incoming and outgoing mail together, for example, has now reached the formidable total of at least 35,000 items per year—say 40 per member, or over a hundred per working day, and this, of course, takes no account of telephone calls. 2875 inquiries were dealt with by the Information Section during the year, 79 requests for translations were received, 413 items were sent on loan to members from Aslib's own collection of books and periodicals, and orders were received for the location and photographic reproduction of over 700 items. Members who have followed Aslib's course during the war years will realize that these figures indicate very rapid development since 1941 when, from the staff point of view, Aslib was still a 'one-man show'.

In addition to its three periodical publications and the Annual Conference Report, Aslib published during the year J. H. P. Pafford's *Books and Army Education*, a *Catalogue of Films of General Scientific Interest*, the second edition of J. E. Wright's *Manual of Special Library Technique*, two reports of one-day conferences held in 1946, an index to the Annual Conference Reports 1924–45, and two reprints of articles first appearing in *The Journal of Documentation*. The Northern Branch held a one-day meeting at Liverpool in October 1946 and a conference at Sheffield in March 1947; Dr. W. E. Batten demonstrated his adaptation of the punched-card system to Aslib members in May, and in June a number of experts were invited to attend a meeting to discuss the application of mechanization to libraries and technical information services. A Study Group on special librarianship was organized in August 1946, and a course of lectures on the same subject was given from April to June 1947. In addition, the Conference and Education Committee circulated to members a questionnaire on the existing facilities for special librarianship training, the answers to which helped in the drawing up of recommendations to be made to the Library Association regarding the syllabus for the examination of those who are working in non-public libraries. Lastly, but not least, Aslib was directly

represented on various bodies concerned with national and international aspects of documentation.

All these activities were guided by the President, Council, and Committees whose work is now described in greater detail.

The President

Those who attended the 1946 Conference will remember Sir Reginald Stradling's presidential address on the place of the intelligence group in the technical team. The interest which he displayed then in Aslib's development has been actively maintained throughout the year and, in spite of his many preoccupations, Sir Reginald has always been ready to give his support when needed. It is with very real gratitude that Aslib learns that he is willing to continue as President for another year.

The Council and Standing Committee

A full list of the Council for 1946–7 was printed in the *Report of Proceedings of the Twenty-first Conference 1946* and also in the November 1946 issue of *Aslib Information*. Unfortunately, Mr. Francis Hughes had to resign early in 1947, since he found that he would be abroad so much that he would not be able to attend meetings. Aslib is very grateful for his past services—he was one of those whose faith in its future and active interest did much to promote its reorganization during the war years.

Mr. J. G. Pearce is retiring from the Council at the end of the year after continuous membership of it since the inauguration of the Association in 1924. In fact it was largely due to his efforts that Aslib came into being. In token of their appreciation of all that he has done for the organization, the Council unanimously agreed to make Mr. Pearce an Honorary Member. We hope that he will return to active participation in the task of guiding Aslib when he foresees sufficient easing up of his present responsibilities to enable him to attend meetings.

Aslib's activities have now enlarged to such an extent that it is no longer practical for the Council to concern itself directly with all details. On the recommendation of the Policy Committee which was appointed in 1946 it was agreed that the full Council of thirty should meet four times a year, and that a Standing Committee should be appointed to carry out the preparatory and advisory work requested by the Council, to supervise the finances of the Association, and to assist the Director in carrying out day-to-day work. This committee includes *ex officio* the chairmen of the three main committees and so is able to co-ordinate Aslib's work as a whole. Members of the Standing Committee for 1946–7 were: Mr. C. Le Maistre (Chairman of Council), Mr. T. M. Herbert (Hon. Secretary), Miss I. Shrigley (Hon. Treasurer), Mr. B. Agard Evans (Chairman of the Publications and Editorial Committee), Mr. B. Fullman (Chairman of the Conference and Education Committee), Mr. R. H. Hill (Chairman of the Information Committee), Mr. O. F. Brown, and Mr. A. E. Cummins.

The above reorganization did not take place till October 1946 so

that in the twelve months under review the full Council in fact met six times and the Standing Committee held three meetings.

A full list of the Council for the ensuing year, 1947–8, will be printed in the 1947 Conference Report.

Amalgamation of Aslib and the B.S.I.B.

At the 1946 Annual General Meeting it was proposed and unanimously agreed that a special joint committee should be set up to work out the method by which Aslib and the British Society for International Bibliography could be brought together in closer co-operation or possible coalescence. This joint committee, consisting of Mr. C. Le Maistre, Mr. B. Agard Evans, Mr. T. M. Herbert, Professor R. S. Hutton, Mr. R. L. Sheppard, Miss I. Shrigley, and the Director, for Aslib, and of Dr. S. C. Bradford, Mr. R. A. Fairthorne, Mr. H. Hyams, Mr. C. Lakin Smith, Mr. J. F. Stanley, and Mr. J. E. Wright, for the British Society for International Bibliography, started its work in January 1947. The following principles of amalgamation were circulated to the membership of both bodies and were accepted unanimously by the British Society for International Bibliography at a Special General Meeting on 15 April 1947. They were also accepted, *nem. con.* and with one abstention, by Aslib members at an Extraordinary General Meeting held on 18 April 1947.

Principles of Amalgamation

1. That the amalgamation of the British Society for International Bibliography and the Association of Special Libraries and Information Bureaux shall take the form of complete coalescence of the two bodies.
2. That the objects of the new organization shall comprise those of the two component bodies.
3. That the name of the new organization shall be registered as 'Aslib'. This term should be a code word, and should not be considered in any way to comprise the initials of any Society or Association. The letter-heading of the new organization shall be suitably arranged to include reference to both present organizations.
4. That the British Society for International Bibliography and the Association of Special Libraries and Information Bureaux shall, as found necessary, wind up their present affairs separately before entering the new single corporate body.
5. (*a*) That the new organization Aslib undertakes to accept all members of the British Society for International Bibliography who are not also members of the Association of Special Libraries and Information Bureaux at their present B.S.I.B. subscription rates.

   (*b*) That members of the British Society for International Bibliography who are also members of the Association of Special

Libraries and Information Bureaux shall be required to pay to the new organization their Association of Special Libraries and Information Bureaux subscription only.

(*c*) That, as from the date of their Special General Meeting, 15 April 1947, no new members shall be enrolled by the British Society for International Bibliography, applicants after that date being informed of the proposed amalgamation and advised to join Aslib.

It was also agreed:

That for the first year of its existence, and for that year only, the Council of the new organization should consist of the Council of each body, sitting together.

That the first President of the new organization should be the present President of Aslib for the remainder of his term of office (two years).

A sub-committee consisting of Mr. C. Le Maistre, Mr. T. M. Herbert, Dr. S. C. Bradford, and Mr. R. A. Fairthorne was appointed to prepare a draft of the constitution of the new joint organization. In this work care has been taken to incorporate as far as possible those alterations to the present *Memorandum and Articles of Association of Aslib* which were recommended at the 1946 Aslib Annual General Meeting. It is hoped that the full legal process for the amalgamation, including the submission of the new constitution to members and the liquidation of both present bodies, may be completed by the end of December 1947.

Finance

The audited accounts for the year ended 30 June 1947 have been circulated to all members and will be presented for acceptance at the 1947 Annual General Meeting. This year income has only just met expenditure. Aslib's increasing activities required more staff and equipment which in turn necessitated the conversion of the front basement room and the ground-floor kitchenette into further office accommodation. (Accommodation is still one of Aslib's most desperate problems, but the general building situation is such that there is little hope that a move to larger premises can be made for at least another year.) There have been other corresponding increases in expenditure and, in addition, the cold spell in 1947 froze the entire office and resulted in burst pipes and subsequent damage by flooding. On the other hand, again this year, in accordance with previous custom, no notice has been taken in the accounts of the stock of Aslib publications, the value of which is now considerable.

What Aslib now needs financially more than anything else is some form of capital endowment. Dependent as it is on membership subscriptions, the grants from the Department of Scientific and Industrial Research and the British Council, and the proceeds of the sales of its publications, it is impossible for it to build up a fund with which to equip larger premises (if it could secure them) or to start on any project which involves substantial outlay before returns can be expected. If

it were to economize any further it would have to reduce the value of its services to members which in turn would check membership and so reduce income. The only way out of the vicious circle appears to be a disinterested benefactor who will endow the organization without attaching obligations to develop any special activity which would disturb that balance of growth which Aslib is now trying to achieve. In this connexion a debt of special gratitude is owed to the Department of Scientific and Industrial Research which grants aid to Aslib although Aslib's activities are not confined to science or industry. We scarcely dare to expect the benefactor but—miracles do happen!

Membership

Membership had increased to 827 on 30 June 1947, as against 712 in 1946 and 530 in 1945. It is encouraging to note the many overseas members who have joined and, in particular, the building up of membership in the Dominions and India. It is hoped to bring out an up-to-date list of members soon after amalgamation with the British Society for International Bibliography has taken place.

Northern Branch

There have been some delays in the completion of the formal arrangements for a Northern Branch, the idea of which was approved in principle at the meeting at Manchester on 8 May 1946. This has largely been because in drafting the constitution it has been desirable to bear in mind the possible subsequent formation of other branches and to make the relations between such branches and the main organization as flexible as possible. It has already been accepted that the area 'Northern Branch' should be taken to include Yorkshire, Nottinghamshire, Leicestershire, Warwickshire, Gloucestershire, and all counties north and west of these. Any member situated in that area can ask to be included in the Branch membership. In the meantime absence of a formal constitution has not deterred Northern members from continued activities, and very successful one-day meetings were held at Liverpool on 18 October 1946 and at Sheffield on 27 March 1947. These were reported in *Aslib Information.*

Conferences and Meetings

The 1946 Annual Conference was held at the Polytechnic, Regent Street, London, during the week-end 14–15 September. A full account is given in the *Report of Proceedings of the Twenty-first Conference 1946.*

In addition to the two meetings arranged by the Northern Branch and mentioned above, Aslib was responsible for three other meetings during the year. The first was on 15 May 1947 when a meeting to discuss some of the problems arising from the present grave shortage of British books was held under the auspices of Aslib and the Association of Scientific Workers. Mr. L. J. F. Brimble, one of the joint editors of *Nature,* was in the Chair, and the meeting was attended by eighteen other representatives of publishing, bookselling, educational, and

research interests. The discussion was informative and it was agreed to prepare a memorandum which could form a definite and authoritative statement to support all those striving for a better distribution of paper supplies. Various unforeseen causes delayed the preparation of this memorandum but a good deal of material for it has been assembled.

On 28 May Dr. W. E. Batten of I.C.I. Ltd., Plastics Division, gave a most interesting demonstration of his adaptation of the punched-card system to Patent Abstracts. Some eighty to ninety persons were present.

The third was at the Royal Society on 24 June when, at the request of the Department of Scientific and Industrial Research, Aslib convened a meeting of some thirty experts to consider the application of mechanization to libraries and technical information services. Aslib was then asked to form a clearing-house for information on mechanization and related problems and an independent committee was set up to advise and co-operate with Aslib on problems connected with mechanization.

The following agreed to serve on the Conference and Education Committee for 1946–7: Mr. B. Fullman (Chairman), Mr. R. Brightman, Miss M. Couldrey, Miss M. Gosset, Miss B. Kyle, Mr. E. R. McColvin, Dr. V. E. Parke, Miss I. M. Shrigley, and Mr. G. Woledge. Mr. A. E. Cummins was co-opted to serve with the Education Sub-Committee, and Mr. D. V. Arnold was co-opted to serve with the Conference Sub-Committee.

Lecture Courses

A week's Study Group on Special Librarianship was held in August 1946 at which about seventy students attended and, in addition to morning and evening lectures, were taken to visit a number of libraries of particular interest. The course was repeated in August 1947.

Several Aslib members lectured for the University of London School of Librarianship, particularly in connexion with the course of evening lectures on special Librarianship which was open to part-time students and so fulfilled a long-felt want. The responsibility for organizing this set of lectures was shouldered by Mr. B. Fullman.

Aslib itself organized a set of ten lectures on subjects connected with work in non-public libraries and information bureaux during April, May, and June 1947. These were well attended and many thanks are due to the lecturers who spared neither time nor trouble for this purpose.

Aslib receives fairly frequent requests from overseas members for copies of lectures given during these courses. Unfortunately the compilation of notes for a spoken lecture is much less onerous than the preparation of a manuscript for printing. Our lecturers are all extremely busy people and in most cases they cannot give this extra time, but wherever possible Aslib is now trying to make the reference material compiled for lectures available to members through one or other of its publications.

The Training of Special Librarians and Information Officers

One of the most important pieces of work undertaken by the Conference and Education Committee during the year has been the examination of the facilities now existing for training workers in non-public libraries and information bureaux and of the qualifications which are needed in this career. A sub-committee of four, Mr. B. Fullman, Mr. A. E. Cummins, Dr. V. E. Parke, and Mr. G. Woledge, held a number of meetings and have examined the matter in detail. Members will remember that, early in 1947, a questionnaire was circulated by Aslib asking how far the existing facilities for training supplied the qualifications which they considered to be desirable for workers in non-public libraries. About 150 replies were received, the majority, as might be expected, being from government or industrial libraries. Amongst these there was a very high proportion of agreement that the syllabus for the examinations held by the Library Association was too heavily weighted on the public library side, particularly in such subjects as library administration, and had too much emphasis on the possession of detailed knowledge of literature in the restricted sense of the word. This proved the existence of a well-defined need affecting at least certain sections of the Aslib membership, and in view of this the committee examined a number of suggestions for an 'ideal' syllabus for the librarian in the non-public library. Recommendations based on these are being forwarded to the Library Association in the hope that it will give them favourable consideration. The problem of defining a suitable standard of education and training for the information officer, as apart from the librarian, is still under consideration by the committee.

Publications

The following agreed to serve on the Publications and Editorial Committee for 1946–7: Mr. B. Agard Evans (Chairman), Mr. J. J. Eaton, Mr. L. M. Harrod, Professor R. S. Hutton, Mr. W. R. Le Fanu, Dr. R. S. Schultze (Hon. Editor of the *Aslib Book-List*), Mr. G. Woledge, and Mrs. A. M. Whitrow. The last-mentioned acted as Hon. Secretary to the Committee until ill health caused her resignation early in 1947.

Mr. Theodore Besterman, General Editor and Chairman of this Committee since 1944, left to become Counsellor, Bibliographical and Library Centre of Unesco, in August 1946. Fortunately he was able to continue his work of Editor of *The Journal of Documentation* until the end of volume II (March 1947). Since then the Director has taken over the duties of Acting Editor, assisted by an Advisory Editorial Board appointed by the Aslib Council. The present members of the Board are: Mr. F. C. Francis, M.A., F.S.A., British Museum, Dr. J. Urquhart, B.Sc., Ph.D., Science Museum Library, and Mr. G. Woledge, B.A., A.L.A., British Library of Political and Economic Science. Members of Aslib receive the *Journal* free but, in addition, the number of non-member subscribers continues to grow satisfactorily. Volume I has been reprinted and is now available to those who were not subscribers at the start.

There has been a further increase in the circulation of the *Aslib Book-List* and the Committee have under consideration ways in which its usefulness to members may be still more increased. Mr. D. V. Arnold has kindly consented to act as Hon. Assistant Editor for the *Book-List*.

The bulletin, *Aslib Information*, has been enlarged to a four-page monthly and has been found to be an increasingly useful medium for the communication to members of a type of information which would not be suitable for the *Journal*.

The Catalogue of Films of General Scientific Interest Available in Great Britain, which was compiled by the Scientific Film Association, was published by Aslib in September 1946. It sold so well that a further reprint had to be made within a short period. A companion publication on medical films is in the press and should be ready by the end of 1947.

A second edition of the *Manual on Special Library Technique*, by Mr. J. E. Wright, was published in November 1946 and over half the edition has already been sold.

Books and Army Education 1944–1946; Preparation and Supply, by Mr. J. H. P. Pafford, Goldsmiths' Librarian of the University of London, was published in March 1947, being an account of the method by which books and libraries were selected, obtained, and distributed for the Army Education Scheme in the release period after the war.

Music Publishers' Numbers. A Selection of 40 Dated Lists, 1710–1900, by Dr. Otto Erich Deutsch, was published in March 1947. This was a reprint of two articles in *The Journal of Documentation* (vol. I, no. 4, and vol. II, no. 2) supplemented by an introductory note, a list of publishers, and a list of places mentioned in the text.

A List of Medical Libraries and Information Bureaux in the British Isles, compiled by Mr. W. R. Le Fanu, was also offprinted from *The Journal of Documentation* (vol. II, no. 3), thus making available to a wider public a most useful reference tool.

The *Report of Aslib Meeting on Indexing and Filing of Unpublished Material, 15 February 1946*, was published in August 1946 and has sold steadily ever since. It contains a great deal of useful information on a subject of which the importance in the smooth and efficient running of information bureaux has seldom been sufficiently recognized.

The *Report of Aslib Meeting on Planning and Equipment of Special Libraries, 6 April 1946*, was published in May 1947. Papers given both at this and at the February meeting on indexing and filing originally appeared in *The Journal of Documentation*, but in their separate form are supplemented with accounts of the discussions which took place at the end of each session. The account of the third of these 1946 meetings, that on industrial information services held in Manchester on 8 May 1946, was delayed by a series of accidents but has now appeared.

A useful supplement to the series of *Reports of Proceedings* of the annual Aslib conferences is the *Author and Subject Index to Vols. I–XX, 1924–45*, which was published in April 1947 and which provides a key to the wealth of material of permanent reference value contained in these reports.

Aslib has suffered to the full all the exasperating delays and uncertainties which beset publishing in these days. Nevertheless, the Publications and Editorial Committee continues to press forward with enthusiasm and a number of new publications are planned for the next twelve months.

Information and Library Section

Figures quoted in the introductory paragraphs of this report show how the work of the Information and Library Section of Aslib has increased in the year under review. A rough analysis of the type of inquiry received showed that about a third concerned the location of books and periodicals, mainly foreign publications. Next highest came requests for sources of information and for short bibliographies on special subjects.

An interesting development during the year has been the greatly increased use by members of Aslib's own collection of books and periodicals. The publication of *Aslib Information* monthly makes it possible to notify the more interesting items received by Aslib, mainly through the generosity of its friends, and also allows room for a brief reference to recent papers appearing in periodicals. In connexion with the quarterly survey of documentation now published in the *Journal* Aslib has been able to enter into exchange relations with several publishing organizations and has also the help of a number of Aslib members who draw attention to articles of interest appearing in periodicals not likely to be seen by the Aslib staff. Thus articles on the use of punched-card systems are scattered through a wide range of chemical, medical, and engineering literature, but where possible Aslib obtains reprints or photostat copies of the more important items which then become available to Aslib members. In particular, Aslib is trying to build up a good collection of current material on microphotography and on punched cards as applied to use in libraries and information bureaux. Aslib's own 'special library' on documentation is in fact growing fast and is raising problems as to its adequate staffing and housing.

Documentary Reproduction

This service is now firmly established and the library of microfilm copies of war-time German periodicals, accumulated through the work of the Aslib Microfilm Service 1942–5, is housed with Aslib, together with a microfilm reading machine. When the rest of the basement can be rehabilitated it is hoped to improve the service still further by the installation of a machine for facsimile copying on the premises.

The documentary reproduction service, which includes the location of the material to be copied, is undertaken for members and non-members all over the world. Where copyright difficulties arise and the publication is found to be available in its original form, this is supplied. Aslib would like to take this opportunity of thanking all those whose co-operation has made the service possible.

British Union Catalogue of Periodicals

Mr. Theodore Besterman, Editor and Executive Officer of the British Union Catalogue of Periodicals since its beginning, had to resign in August 1946 when he left England to take up a post with Unesco. Work on the Catalogue has, however, continued under his successor, Dr. Alfred Loewenberg, and a report of progress will be printed in the 1947 conference report (see pages 128–9).

Representatives of Aslib on the BUCOP Council for 1946–7 were: Miss J. Barton, Dr. W. Bonser, Mr. A. E. Cummins, and Professor R. S. Hutton.

Relations with Other Organizations

The Director represented Aslib on the Library Committee of the British National Co-operating Body of Unesco and has also served on that body's sub-committee on School Libraries. In addition Aslib has maintained close personal contacts with Mr. Edward Carter and Mr. Theodore Besterman, both former members of the Aslib Council and now Counsellors in the Library Division of Unesco.

Mr. C. Le Maistre, Miss M. Gosset, and the Director represented Aslib at the 16th Conference of the International Federation for Documentation (F.I.D.) at Paris in November 1946. Mr. Le Maistre was then elected President of the F.I.D. for 1946–7 and the Director was elected Chairman of the International Committee on Special Libraries and Centres of Documentation. The same three, with the addition of Dr. S. C. Bradford, will represent Aslib at the 17th Conference of the F.I.D. at Berne in August 1947. The F.I.D. is being formally recognized by Unesco and its constitution is being revised. An interesting development at the Paris conference was the decision to set up two F.I.D. committees on classification, one to deal with the Universal Decimal Classification with which the F.I.D. has always been closely associated, and the other to deal with other types of classification of which, according to its constitution, the F.I.D. must also take account. Hitherto the British Society for International Bibliography has acted as the British National Committee of the F.I.D., but the question whether this function will be carried on by the new joint body which will be formed by the amalgamation of Aslib and the B.S.I.B. is still under consideration.

The Director of Aslib was invited to take part in the conference of the International Federation of Library Associations at Oslo in May 1947 but eventually could not go, and her paper was presented by Mr. F. Donker Duyvis of the International Federation for Documentation.

Aslib continued to work closely throughout the year with the Enemy Publications (Requirements) Committee (EPCOM). Mr. Philip May, Assistant to the Aslib Director, acts as Secretary to the Allocations Sub-Committee which decides the priority to be given to claimants when the number of copies of any German publication received for distribution through HMSO falls below the number of libraries desiring that

publication. Aslib has also published on behalf of EPCOM, in mimeographed form, two editions of a list of current German periodicals, and is associated with strong representations being made against the present high prices charged for German publications.

Aslib continues to be represented on the committees of the British Standards Institution which are concerned with documentation and with the publication of the English edition of the Universal Decimal Classification.

Co-operation with the British Society for International Bibliography has been close throughout the year and work on the proposed amalgamation with this organization has already been described.

Through its connexion with the Department of Scientific and Industrial Research Aslib has been represented at meetings concerned with international abstracting and other problems of documentation.

Other organizations on which Aslib is represented are the National Central Library (Mr. B. Fullman) and the National Book League (Mr. Francis Hughes and, later, the Director).

Surveying the year's progress by Aslib, it appears that there is no end to the tasks which Aslib could usefully perform, particularly in its dual function as a clearing-house for information and as a link through which experiences in different fields may be usefully exchanged. The problem is not one of discovering new fields of enterprise but rather that of choosing, between the many that are offered, those which can be most usefully attempted at Aslib's present stage of development. This choice must be largely governed by availability of trained staff to handle any new extension of services and by the size of the office premises. The staff position has been very much strengthened by the appointment during the year of an Assistant to the Director (Mr. Philip May) and of a whole-time Editorial Assistant (Miss A. Gillard), but the office accommodation presents a more intractable problem. This is why, reluctantly, Aslib must sometimes refuse to undertake ventures proposed by members. The Council and Committees welcome practical suggestions for the extension of Aslib's services, but it is hoped that if these are not put into effect immediately members will realize that it is not inertia but sheer overcrowding which is usually the cause.

This report must close, as always, with a tribute of sincere gratitude to those who by service on Council or Committees or in countless other ways have contributed to Aslib's progress and welfare. Without their co-operation and support Aslib could never have reached its present position, and its future success is equally dependent upon their continued co-operation.

E. M. R. Ditmas
Director

REPORT ON SEVENTEENTH CONFERENCE OF THE INTERNATIONAL FEDERATION FOR DOCUMENTATION (F.I.D.)[1]

(Held in Berne, 24–30 August 1947)

Presented at the Annual General Meeting by Mr. J. F. Stanley, British Standards Institution

EIGHTEEN countries were represented at the Conference, and representatives of UNO, UNESCO, I.S.O. (International Organization for Standardization), and I.F.L.A. (International Federation of Library Associations) were present by special invitation.

The Conference was an 'open' one, about 200 delegates participating, and twelve delegates from the United Kingdom were present. Of these, six constituted the 'official' delegation and attended meetings of the Council of the F.I.D. (representing the British Society for International Bibliography, the Association of Special Libraries and Information Bureaux, the Library Association, the Science Library, the Ministry of Supply, and the British Standards Institution).

The full Conference occupied two full days and two half-days, and the Council of the F.I.D. held three sessions (on the Monday, Wednesday, and Saturday). Several committees held one or more meetings, and a number of unofficial meetings, mainly on classification matters, took place.

The President, Mr. C. le Maistre, C.B.E., presided at all meetings of the Council, and at meetings of the Committees on Ways and Means, Standardization, and Statutes.

The Council and the Conference learnt with great regret that the General Secretary of the F.I.D., Mr. Donker Duyvis, was unable to be present as he had not yet fully recovered from an accident. Telegrams expressing sympathy and good wishes were sent to him, and a reply of thanks was received and read by the President at the closing session of the Conference.

The most important matters discussed by the Council were as follows:

Revision of the Statutes of the F.I.D. A draft of the new Statutes was presented by the Committee which had been appointed for the purpose at the meeting of the Council in Paris in November 1946.[2] This draft was accepted in principle, and the General Secretary was authorized to circulate it to the National Committees for consideration and, it was hoped, ratification. The Council expressed its appreciation of the valuable help given in this work by Dr. David (U.S.A.).

The draft new Statutes define four classes of membership as follows:

National Members, of which there shall be only one from any country, consisting of National Committees representing organizations and individuals interested in the objects of the Federation.

International Members, consisting of international organizations having an interest in the objects of the Federation.

Associate Members, consisting of organizations or individuals interested in the objects of the Federation.

Honorary Members, consisting of distinguished individuals whom the F.I.D. may wish to honour.

According to the new Statutes, the ultimate authority in the affairs of the F.I.D. rests with the National Committees, which alone have the right to vote.

Associate Members will be admitted only from countries which have not yet formed National Committees, and associate membership will be discontinued in any country

[1] This report, which is unofficial, is presented by Dr. S. C. Bradford, Miss E. M. R. Ditmas, Miss M. Gosset, Mr. H. Hyams, and Mr. J. F. Stanley.

[2] This Committee had worked by correspondence in the interval between the sixteenth and seventeenth Conferences, but did not actually meet until the Berne Conference. The Committee then held three sessions.

as soon as a National Committee in that country has been admitted as a National Member of the F.I.D.

The Council shall consist of the President, three Vice-Presidents, and one delegate from each National and International Member. The official delegate from each National Member may be accompanied by one other representative of his National Committee, but each country has only one vote.

The General Secretary and Treasurer shall be *ex officio* members of the Council.

In order that decisions may, when necessary, be taken between meetings of the Council, provision is made in the new Statutes for the formation of an Executive Committee (called the Committee of Action) consisting of the President, the Senior Vice-President, the General Secretary, the Treasurer, and three other members of the Council.

Rotation of office of the officers and members of the Council is provided for.

The Council decided that when the new Statutes come into force all the present officers shall resign and new officers shall be elected.

Finance. Discussions in the Sub-Committee on Ways and Means were somewhat handicapped by the absence, through illness, of the Hon. Treasurer, with the result that some of the many queries that arose in connexion with the Statement of Accounts remained unanswered. The Sub-Committee and the Council accepted the Hon. Treasurer's estimated budget for 1947 which was based on the fact that the large amount of work done in the past on behalf of the F.I.D. by the General Secretariat can no longer be continued on a purely voluntary basis. The budget provided for a total income of 17,000 Dutch florins, of which 12,000 Dutch florins (approximately £1100) should be contributed by the National Committees. The proposed contributions from each National Committee were determined according to a scale closely corresponding to that adopted as the basis for contributions to the International Organization for Standardization. According to this scale the smaller countries are now asked to double their pre-war contributions to the F.I.D., while the larger countries are asked to increase their 1939 contributions by a higher ratio. In the case of the United Kingdom and France the proposed contributions are raised from 300 to 2750 Dutch florins (£30 to £250 approximately), and the proposed contribution from the U.S.A. (a new member) is 3500 Dutch florins (£316 approximately).

It was realized that in order that the Federation could carry on its work it was essential to obtain a larger income immediately, and the National Committees were asked to pay their 1947 contributions according to the new scale. To enable this to be done the Council rescinded the resolution passed at its meeting in Paris in November 1946 that the contributions for 1947 should not be raised above those prevailing in 1939.

The Swiss and the Dutch delegates said that their National Committees would be prepared to pay their 1947 contributions according to the new scale.[1] Other delegates, including the British, said they could accept the new scale only as a target and that they would do their best to persuade their National Committees to reach the target as closely as possible. The French delegate explained that as the sole source of revenue for contributions from France to the F.I.D. was the French Government, and as the national budget for the year had already been fixed, it was not possible to increase the contribution to the F.I.D. for 1947 above that previously decided upon, i.e. the 1939 figure. An effort would be made to get the contribution raised for 1948, but the French delegate feared that to secure an increase from 300 to 2750 Dutch florins might prove difficult in view of the increasing demands made upon the Government for contributions to UNESCO and other international organizations.

The Council expressed the hope that those National Committees which had not yet done so would pay in full their arrear contributions for the war years (1940–5).[2]

[1] The Swiss Committee is in addition handing over to the F.I.D., as a voluntary gift, the proceeds from royalties on a book dealing with the Universal Decimal Classification.

[2] The United Kingdom contribution (from the British Society for International Bibliography) for the years 1940–5 has been 745 Dutch florins, this being slightly less than one-half the full amount due.

The Council instructed the General Secretariat to consider in what ways additional income might be obtained, and to submit a report to the next meeting of the Council.

In addition, financial assistance from UNESCO is to be sought in connexion with specific projects, and the Ways and Means Committee is to give further consideration to the question of what tangible benefits can be offered to the National Committees in return for their financial contributions. One such benefit might take the form of a definite number of free copies of the *Review of Documentation.*

Relations with UNESCO. Mr. E. J. Carter, Counsellor of the Libraries and Museums Section of UNESCO, explained that UNESCO had at one time contemplated making formal arrangements or agreements with non-governmental international organizations. Recently, however, it had been decided to review this policy and in July 1947 a special committee had been formed to consider the matter. In the meantime, the Director-General could enter into *ad hoc* agreements with such organizations, including the provision of funds for the execution of tasks delegated to the organizations by UNESCO. Such tasks might include surveys, investigations, publications, conferences, travels, &c., provided they were regarded as essential to the execution of UNESCO's programme. The assistance extended by UNESCO might include the provision of a limited number of organizations with office space and/or secretarial facilities at UNESCO House in Paris, either against reimbursement or in return for services rendered to UNESCO in the execution of its programme.

Mr. Carter added that if the F.I.D., having already convinced UNESCO of its standing in the field of documentation, could present a programme of specific projects for 1948, accompanied by an estimate of the cost of carrying out such projects, the question of aid could be considered, but the matter was urgent as UNESCO was now preparing its budget. UNESCO welcomed a strong F.I.D., and would prefer a practical liaison rather than a constitutional contract between the two bodies.

It was decided by the Council that the President and the General Secretary, together with Monsieur Cain (France), should in the near future seek an interview with the Director-General of UNESCO to discuss the work to be done in 1948. In this connexion it was reported that the General Secretary of F.I.D. had already submitted, unofficially, the following list of projects to UNESCO:

1. Compilation of an international documentary directory, which will contain information about the principal bibliographical sources, reproduction services, &c.
2. Compilation of Subject Lists of periodicals. These will consist of a series of specialized small bibliographies.
3. The Repertorium Technicum—a bibliographical survey of those technical fields the literature of which is difficult to obtain or for which no specialized reference lists are published.
4. Classification, including the extension of the U.D.C., establishing concordance between the U.D.C. and the Dewey Classification, &c.

In referring to this list of projects, Mr. Carter pointed out that some of them might cover items which UNESCO itself would be doing, in which cases, of course, no question of assistance to the F.I.D. would arise.

It was urged that the National Committees should bring to the attention of the UNESCO representative of their own governments the work being done by the F.I.D. and the desirability of appropriate assistance being given to the F.I.D. by UNESCO.

Standardization

(*a*) *Relations between the F.I.D. and the International Organization for Standardization* (*I.S.O.*). In the past, standardization in the documentation field has been discussed at conferences of the F.I.D. and of the International Federation of Library Associations (I.F.L.A.), as well as by the International Standards Association (I.S.A.). The work of the former I.S.A. Committee on Documentation is now being taken up by the I.S.O. Committee on Documentation, and at their Council meeting in Zurich last June the I.S.O. appointed Mr. Vetsch (Switzerland) to represent them in discussions with the F.I.D. with regard to collaboration.

FEDERATION FOR DOCUMENTATION (F.I.D.)

At the F.I.D. Council meeting in Berne several delegates pressed for the formation of a joint committee of I.S.O., F.I.D., and I.F.L.A. The President of the F.I.D., however, after consultation with Mr. Vetsch and with Dr. Munthe, President of I.F.L.A., submitted the following proposals to the Council of the F.I.D.:

1. In matters of standardization in the field of documentation, co-operation is necessary between all those interested in documentation and librarianship.
2. This co-operation should take place primarily on a national plane, so that each country speaks with a single voice in international discussions.
3. International discussions on matters relating to standardization should be canalized through a single international organization, namely, the I.S.O.
4. The National Committees of I.S.O. should co-operate with all organizations in their own countries which are interested in documentation, so that the national delegations participating in the work of I.S.O. are fully representative.
5. Other international organizations interested in documentation, e.g. the F.I.D. and the I.F.L.A., should be invited to send observers to all meetings of the I.S.O. Committee on Documentation, and should each receive, for their information, copies of all papers on Documentation circulated to the I.S.O. National Committees.
6. In matters relating to the U.D.C., the F.I.D. is to remain the sole authority.

These proposals were supported by the official representatives of the I.S.O. and of the I.F.L.A. and, after some discussion, were unanimously accepted by the F.I.D. Council for circulation to the National Committees for ratification.

(*b*) *Programme of Work.* The Netherlands Institute of Documentation, having been requested by the Dutch Standards Association to act on their behalf as International Secretariat of the I.S.O. Committee on Documentation, had drawn up a draft programme of work and had circulated to members of the F.I.D. Council some draft international standards for discussion. Owing to a slight misunderstanding the recognized procedure for I.S.O. Secretariats had not been followed, but it was agreed that the slight irregularities that had occurred could easily be put right and that discussion of the draft standards circulated to the F.I.D. Council should be deferred until the I.S.O. National Committees had had an opportunity of reviewing them.

It was suggested that when the I.S.O. issued a document which had been drawn up by one of the co-operating organizations, the name of that organization should appear in an appropriate manner on the document.

It was further suggested that the responsibility for taking the initiative for various projects should be distributed amongst the National Committees.

It was decided that these matters should be referred to the I.S.O. Committee on Documentation for consideration.

Relations with the International Federation of Library Associations (*I.F.L.A.*)

The President of the F.I.D. reported that he had had conversations during the Conference with Dr. Munthe, President of the I.F.L.A., who had assured him that the I.F.L.A. was anxious to co-operate with the F.I.D. on all matters of mutual interest. The two Presidents were in agreement that to this end it was most essential that the National Members of the F.I.D. and those of the I.F.L.A. should collaborate as closely as possible in each country.

New Members. The request of the American Documentation Institute to be recognized as the American National Committee was agreed, and the admission of the U.S.A. to membership of the F.I.D. was received with acclamation.

The formation of a National Committee in Czechoslovakia was confirmed, and this committee was admitted to membership of the F.I.D.

The formation of a National Committee in Hungary was announced, and a request from that country for admission as a member of the F.I.D. was accepted.

It was reported that National Committees were in process of formation in Eire and in South Africa, and it was noted with pleasure that requests from these countries for admission to membership of the F.I.D. would be received in due course.

It was reported that the British Society for International Bibliography, which hitherto had formed the British Section of the F.I.D., had taken the initiative in the formation of a more widely representative National Committee, and that discussions between the various interested organizations in the United Kingdom were still proceeding.

The position of Germany was discussed and it was decided that although Dr. Frank (Berlin) was still actively interested in the U.D.C., the 'Deutsche Gesellschaft für Dokumentation' no longer existed as an active organization, and there was therefore at present no National Committee of the F.I.D. in Germany.

The present position is that there are now eleven National Members of the F.I.D., situated in the following countries:

Belgium	Roumania
Czechoslovakia	Sweden
Denmark	Switzerland
France	United Kingdom
Holland	U.S.A.
Italy	

Officers of the Federation

Dr. C. David (U.S.A.) was elected a Vice-President.

The Council accepted with great regret the resignation of Mr. P. C. P. Huysers (Holland), the Assistant General-Secretary of the F.I.D. Appreciation of the excellent work done by Mr. Huysers on behalf of the Federation was expressed by the President and heartily endorsed by the Council.

Resolutions submitted to the Council

Amongst the various resolutions submitted to, and adopted by, the Council were the following:

(i) *Submitted by Monsieur Cain (France):*

(*a*) For each technical committee set up by the F.I.D. a *rapporteur* should be appointed to keep in permanent touch with the members of the Committee, with the National Committees, and with experts in those countries which had not yet been admitted to membership of the F.I.D.

(*b*) The *rapporteurs* should present reports to the next Conference, after having been considered by the relevant Committees.

(*c*) Meetings of the Committees should take place a few days before the next Conference and not during the Conference.

In accepting this resolution, it was agreed by the Council that the *rapporteurs* should keep the General Secretary fully informed of all correspondence they conducted in the course of their work.

It was also agreed that each Committee should elect its own Chairman and *rapporteur*.

(ii) *Submitted by Dr. David (U.S.A.):*

(*a*) A Report on a Survey of Abstracting Service in Clinical Medicine, by the American Medical Association, should be referred to the Committee on Co-ordination of Abstracting Services for consideration.

(*b*) Efforts should be made to extend a knowledge of the work of the F.I.D. in Latin America, with a view to securing the formation of National Committees on Documentation in that continent.

(*c*) The President, the Hon. Treasurer, and the General Secretary should meet at The Hague in the near future to draw up an accurate balance-sheet and with a view to establishing an adequate accounting system.

(iii) *Submitted by Dr. Bourguin (France):*

A resolution calling for the formation of a Committee on Terminology was considered, and it was agreed that this matter should be referred to the I.S.O.

Reports submitted by Committees:

It was stated that the work of some of the Committees had been handicapped by the fact that delegates to participate in the work of the Committees had not been appointed by the National Committees. It was agreed that the terms of reference of all Committees should be circulated to the National Committees with a request that appropriate delegates for each Committee should be appointed.

Classification Committee. It was reported to the Council by Dr. Bradford (Chairman of the Classification Committee) that Monsieur Jaffé (Belgium) had been appointed *rapporteur* to a small committee on chemistry in general, to act as an advisory committee to the General Secretary. The other members of this Committee were Mr. de Gorter (U.K.), Dr. Perry (U.S.A.), and Dr. Van Weerden (Holland).

Similar committees on other subjects had also been formed as follows:

Medicine: Dr. Wegelin, Prof. Gigon, and Miss Graf, all of Switzerland.

Atomic Energy: Miss Gosset (U.K.) and Monsieur Langevin (France).

Building (624, 69, 72): A committee to be formed, with Monsieur de Vestel (Belgium) as *rapporteur*.

It was agreed that other countries particularly interested in these subjects could appoint representatives to serve on the committees.

These committees were authorized to commence work forthwith.

The question of International Secretariats for specific subjects was raised, and the General Secretary was asked to review the position and endeavour to form small international committees on the various subjects. The importance of the General Secretary being kept informed of all work being done on extensions of the U.D.C. was emphasized, as was also the desirability of all work in any country being done through the channel of the F.I.D. National Committee in that country.

The formation of a Sub-Committee on Comparative Classification was confirmed, and the National Committees were to be invited to appoint representatives to serve thereon. These representatives would be charged with the duty of collecting all the relevant data in their respective countries and sending them to the *rapporteur* direct or through the General Secretary, the latter in any case being sent a copy of all correspondence between the members of the committee and the *rapporteur*.

Monsieur Lorphèvre (Belgium) reported that it was considered that there was not close enough collaboration between the experts in the various countries on the one hand and the Executive Committee and General Secretary on the other hand. In this connexion it was agreed that all communications to The Hague should be sent through the National Committees to facilitate proper liaison.

Monsieur Lorphèvre also reported that it was considered desirable that all the rules of the U.D.C. and decisions of the Committee up to date should be codified. He undertook to do this.

Monsieur Lorphèvre also undertook to report on the present position regarding concordance with the Dewey Classification.

Review of Documentation. This periodical, which is published by the F.I.D. from The Hague, will in future not print in its ordinary issues papers which had been presented at the F.I.D. Conferences, but would keep these for a special supplement. The *Review* will publish original material on documentation and will aim at becoming the recognized international journal on the subject. The *Review* will also publish accounts of the activities of the F.I.D. and of its International Committees and of the National Committees and will review at length selected books within its field.

Subject List of Periodicals. A draft list of periodicals on electrical engineering has been prepared by the F.I.D. Secretariat and this is to be circulated to the National Committees for consideration.

Guides to Documentation. The Council authorized work on three guides, namely:

(*a*) A guide on national microfilm services.

(*b*) A third edition of the *Index Bibliographicus*.

(*c*) A complete guide to international documentation which will incorporate (*a*) and (*b*).

Work is to begin immediately on item (*a*), and a questionnaire—drawn up by Mme Briet (France)—is to be circulated to the National Committees for submission to all microfilm services in each country. It is hoped that the information so collected will enable the directory to be issued early in 1948.

Training and Status of Documentalists. It was agreed to recommend to the I.F.L.A. that the Committee on Special Libraries and Centres of Documentation (a joint F.I.D./I.F.L.A. Committee) should be dissolved and that a new committee, entitled the Committee on Training and Status of Documentalists, should be formed jointly by the two organizations. The National Committees and UNESCO are to be invited to appoint representatives to this committee.

Programme of the Conference

The Conference was devoted to the presentation and discussion of papers on the following subjects:

National and international co-operation in the field of documentation (7 papers).
Professional training of documentalists (4 papers).
Standardization in the field of documentation (3 papers).
International services of photo copies and microfilms.
Technical resources of documentation (6 papers).
Classification (10 papers).

Next Council Meeting and Conference

It was decided to hold the next Council meeting at The Hague in May 1948, together with meetings of some of the committees. At this Council meeting the date and place of the next Conference would be decided.

APPENDIX A

Receptions, Visits, and Excursions

During the Conference a number of receptions, visits, and excursions took place, as follows:

On Monday, 25 August, the members of Council were entertained to lunch by the President of the Cantoral Government of Berne.

On Thursday, 28 August, the delegates were entertained at an official dinner.

Visits to the Swiss National Library and to other local places of interest were arranged, and on Wednesday, 27 August, the afternoon was devoted to a trip by motor-coach to Murten.

On Friday, 29 August, an all-day excursion took place. The party left Berne railway station at 6.45 a.m. and entrained for Meiringen, whence motor-coaches departed for a magnificent drive over the Grimsel, Furka, and Susten Passes. The motor road over the Susten Pass is of modern construction, having been built during the war and opened for traffic in 1946. The party arrived back in Berne at 8.30 p.m.

APPENDIX B

Arrangements for the Conference

The Conference was held in the Rathaus, Berne, in very comfortable and convenient surroundings. The acoustics of the hall were good, the weather was good, and there were none of the distractions and disturbances such as took place during the Conference in Paris in 1946 when, it may be recalled, building operations were in progress in the adjoining room.

The papers presented to the Conference had mostly been printed in advance, and were therefore not read in full. A *rapporteur* for each session had been appointed, whose duty was to present a summary and critical review of the papers. After the *rapporteur* had spoken the authors were invited to add a few remarks, and if some of the authors

took up more time with their remarks than would have been occupied by reading their original papers this is not a criticism of the official arrangements. The principle of having the papers summarized by a *rapporteur* was generally regarded as satisfactory.

It was unfortunate that many of the delegates received the printed papers only on arrival in Berne, and therefore had little opportunity of studying them before they came up for discussion. This disability was considerably mitigated by the excellent work of the interpreters, of whom Dr. J. E. Holmstrom (United Kingdom) was one.

The arrangements for holding committee meetings during the Conference were not entirely satisfactory, largely because the Swiss authorities had not received advance notice that so many committee rooms would be required. Committee meetings were held at the Rathaus, at the Swiss National Library (some distance away), at one of the hotels, and in a café, and some confusion sometimes occurred. One evening half the members of a committee assembled at the Rathaus and the other half went to the Library. As the result of a misunderstanding over the telephone these two parties changed places, and by the time further contact could be established by telephone the members were more interested in dinner than in discussion, with the result that the meeting was abandoned.

APPENDIX C

Notes submitted by Mr. B. de Gorter regarding Meetings on Classification

The events which took place were to the best of my understanding as follows. An open meeting of the Classification Committee at which about thirty members of the F.I.D. were present was held at 8.30 a.m. on Tuesday, 26 August 1947. This meeting appointed a preliminary Committee on Chemistry to hold discussions during the Berne Conference with the various experts present on the outstanding problems in the chemistry sections of the U.D.C. This committee consisted of myself (Chairman), Mr. F. Jaffé (Belgium) (*Rapporteur*), Dr. W. J. van Weerden (Holland), Dr. J. W. Perry (U.S.A. Observer).

At its first meeting, at which Dr. Bradford was also present, this committee arranged for the formation of the following separate sub-committees: (1) Plastics Committee, (2) Industrial Chemistry Committee, (3) Structural Notation Committee, the recommendations of these to be co-ordinated in due course by the Chemical Committee.

The members present at the meetings of the Plastics committee were Mr. J. H. Bennitt (U.K.), myself, Mr. F. Jaffé (Belgium), Dr. Anna Leyds (Holland), Dr. Ir. A. W. J. Mayer (Holland), Dr. Ed. Michel (Belgium), Dr. J. W. Perry (U.S.A. Observer), Dr. W. Scholten (Holland), Dr. W. J. van Weerden (Holland).

I myself proposed that Mr. J. H. Bennitt be Chairman of this Committee which, I take it, has also now a formal status. I assume that Mr. Bennitt will be the permanent Chairman.

The members of the Committee on Industrial Chemistry were Mr. F. Jaffé (Chairman), Dr. W. Scholten, Mr. J. H. Bennitt, Dr. Ir. A. W. J. Mayer.

The members of the Committee on Structural Notation were myself (Chairman), Mr. Jaffé, Dr. W. J. van Weerden, Dr. J. W. Perry.

It was understood, of course, that when these committees were given official status, the General Secretary of the F.I.D. would write to the National Committees concerned to ask if they were prepared to ratify the membership of these committees as they stood at present.

REPORTS

BRITISH UNION CATALOGUE OF PERIODICALS

Third Annual Report of the Council for the Year ending 31 March 1947

THE number of slips written and locations recorded during the year, and the total up to the end of the current year, were approximately as follows:

	1946–7	*Total*
Main entries . . .	23,600	94,200
Cross-references . . .	16,200	68,329
Total slips . . .	39,800	162,529
Locations	37,700	165,349

Work has continued on the British Museum *Academies* pressmarks; the periodicals catalogued as *Ephemerides* and *Directories* have been dealt with, and about 85 per cent. of the relevant material in the large newspaper collection at Hendon have also been catalogued. The changes of personnel mentioned later in this Report have inevitably retarded progress to some extent; but it is hoped that the British Museum holdings will be on record and the first letters of the check-list ready for the printer by the middle of 1948.

The number of libraries who have answered the circular issued last year and promised their collaboration is now 335. A further circular letter to be sent to the 224 libraries who have not so far responded is under consideration.

The difficulty foreshadowed last year, as a result of conditions in the printing trade, in arranging for the setting-up of the preliminary check-list has not yet been solved and is receiving the earnest attention of a Sub-Committee appointed for the purpose. Several meetings have been held and approaches to several printers made. The original provisional estimate was £4750 for this work, but printing costs have risen so greatly that a sum of at least £6900 extra is likely to be required and inquiry as to whether the original grant can be increased for this purpose has not so far met with success.

The Council received in the latter part of the year with the greatest regret the resignation of Mr. Theodore Besterman from the post of Editor and Executive Officer. To Mr. Besterman must be attributed the whole conception and initiation of the British Union Catalogue of Periodicals, and it has been his enthusiasm and energy, with the capable assistance of his small staff and the generous help of Mrs. Besterman, which have brought the material to its present advanced stage of preparation. The Council resolved at their meeting on 14 October 1946 to record their high appreciation of Mr. Besterman's services and expressed to him their best wishes in his new and wider sphere as Counsellor in the Libraries Section of UNESCO.

After very careful consideration of a report of the position created by Mr. Besterman's departure, the Council appointed to the post of Editor and Executive Officer Dr. Alfred Loewenberg, who had from the outset been associated with the work as Chief Cataloguer and had a close acquaintance with the aims and methods of the Catalogue. They have also appointed Mrs. H. M. Walker, of the Hertfordshire County Library staff, and Miss M. E. Hammond, of the Library Association *Subject Index to Periodicals* staff, as Senior and Junior Cataloguers respectively.

The audited statement of income and expenditure for the year ended 31 March 1947 is printed on page 129.

BRITISH UNION CATALOGUE OF PERIODICALS

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 MARCH 1947

	£ s. d.	£ s. d.
EXPENDITURE		
Salaries	1,349 2 4	
Printing and Stationery	8 15 0	
Books	3 3 0	
Postage	6 5 0	
Travelling Expenses	18 10 6	
Audit and Accountancy	3 3 0	
Sundry Expenses	3 0 3	
		1,391 19 1
Less Grant from Rockefeller Foundation		1,000 0 0
DEFICIT for year ended 31 March 1947		391 19 1
ACCUMULATED SURPLUS as at 1 April 1946		649 14 6
Less Deficit for year ended 31 March 1947		391 19 1
ACCUMULATED SURPLUS as at 31 March 1947		257 15 5
Represented by		
CASH at Bank	278 18 3	
„ in Hand	15 0 0	
	293 18 3	
Less Sundry Creditors	36 2 10	
		257 15 5

We have prepared the above Statement from the books and records relating thereto and certify it to be in accordance therewith.

(Signed) WEST & DRAKE
Chartered Accountants.

Sardinia House,
52 Lincoln's Inn Fields,
London, W.C. 2.

THE NATIONAL CENTRAL LIBRARY

THE National Central Library has continued and expanded its services by loans from its own stock, through the inter-library lending system, from university libraries, and from an increasing number of its 'outliers', as well as by the supply of a large volume of information about books and periodicals. The stock of the library, reduced by enemy action from 176,961 to 72,612, rose to 105,974, this increase of 13,784 books including 10,734 volumes (of which 1500 were periodicals) selected from the Inter-Allied Book Centre in 1946.

The total issues of books for the year ending 28 February 1947, which number 66,000, show an increase of 10·6 per cent. over those of the previous year, and of 12·46 per cent. over the last pre-war year. They included 6073 books and periodicals supplied to university libraries, 5066 to special 'outlier' libraries, 6845 to government departments and research and industrial organizations, and 11,897 to adult education classes, an object for which the old Central Library for Students was founded thirty-one years ago. In addition the Scottish and Irish Central Libraries issued 13,690 and 12,893 books respectively to all types of libraries.

The number of books lent by libraries co-operating in the regional library systems to other libraries in their own system was 120,992, as against 50,031 in the last pre-war year and 88,728 in the year 1945–6. In addition 13,189 books were lent to libraries in other regional systems through the agency of the National Central Library.

The number of books issued by the library or through its agency to university libraries (excluding those issued to adult class departments) was 6073, an increase of 71·65 per cent. over the last pre-war year. The university libraries also take their share in lending books to other libraries, lending 6618 in 1946–7.

One of the main sources on which the National Central Library is able to rely for specialized literature is its group of 'outlier libraries', comprising the leading libraries devoted to books on special subjects and a number of research institutions. The group, which now numbers 178 and comprises 149 special libraries, 2 urban libraries which are not yet co-operating in their regional system, and 27 London Borough libraries which have undertaken to lend books to libraries outside London, lent 11,289 books and periodicals during the year.

The Library's international lending service, which had reached very substantial proportions before the war, was resumed in 1946, and a considerable number of books were lent by British to continental libraries and a few borrowed in return.

The number of entries in the union catalogues at the end of February 1946 was 1,684,844, irrespective of 1,544,000 entries in the London Public Libraries Union Catalogue and those in the Welsh Bureaux (837,754) and in Scotland (113,131), a grand total of 4,489,729.

Many thousands of author-cards representing accessions since 1941–2, and a set of subject-cards for bibliography, have been received from the Library of Congress for the Bureau of American Bibliography.

The grant-in-aid to the library from the Lords Commissioners of H.M. Treasury showed a welcome increase from £4500 to £7500; and a helpful addition of over £400 to income resulted from an appeal—in which the help of Mr. B. Fullman, Aslib's representative on the Library's Executive Committee, is gratefully acknowledged—to a number of research bodies and commercial and industrial organizations.

The library has had close association with Aslib in its Council and Information Committee, with other bodies concerned with library services, and with the important work of the Libraries and Museums Section of UNESCO.

UNIVERSITY COLLEGE LONDON

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NOTE: *This is not a complete subject-index to the contents of the papers, but only the names of speakers, titles of papers, &c. Copies of previous Reports can be obtained from the Aslib office, though nos. 2 and 10 are out of print, also a complete Author and Subject Index to nos. 1–20.*

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